Reviewed: 2 New Macs • Illustrator 6 • FileMaker 3

Special Report
Apple's New Chief, Page 38

APRIL 1996

Macworld

THE MACINTOSH® AUTHORITY

Get On the Web

Our Experts Show You How to Manage Your Web Site

PLUS

Top Productivity Boosters, Page 102

Color Ink-Jets Compared, Page 133

$4.95 CANADA $5.95
04>
0 70989 37772 1

in
here
you
work
miracles

© 1995 Microsoft Corporation. All rights reserved. Microsoft Office, shown here, includes: Word, Microsoft Excel, the PowerPoint presentation graphics program and a workstation license for Microsoft Mail (server and software acquired separately) or StarNine Mail. For info. only: in the 50 United States and Canada, call (800) 531-6748. Outside the U.S. and Canada, call your local Microsoft subsidiary or (206) 936-8661. TT/TDD customers call (800) 892-5234 in the U.S. or (905) 568-9641 in Canada. Microsoft and PowerPoint are registered trademarks and *Where do you want to go today?* is a trademark of Microsoft Corp. Power Mac is a trademark of Apple Computer, Inc.

TAKE CONTROL

In here

You

Your Power Mac™

And

Microsoft® Office

Become one.

YOU ARE AN IDEA FACTORY

You assemble your thoughts

Effortlessly.

You drag

Words tables

Charts graphics

From one program

And drop them

Into another

Instantly.

BEGIN TO FORM IDEAS

You run

Microsoft Excel calculations

In your Word document.

You turn

Your Word document

Into a PowerPoint®

Presentation.

You see everything

Come together.

Seamlessly.

GO AHEAD

Make something.

Make anything.

This is you. Working.

Microsoft®

WHERE DO YOU WANT TO GO TODAY?™

Editor's Rave!

"Considering the purchase of a PowerMac?...We strongly recommend that you take a serious look at what Power Computing has to offer."
MacUser- Aug 95

"They might as well have come from Apple - the performance and compatibility are that good."
Macworld- Aug 95

"...an excellent Mac alternative, whether or not you are pinching your pennies."
PC Magazine- Aug 95

"Power Computing's systems match their PowerMac counterparts for speed and compatibility and are every bit as good as a dyed-in-the-wool Macintosh."
Infoworld- June 95

PowerCurve 601/120 Starter
120MHz PowerPC™ 601+

8MB RAM (256MB Max RAM)
Optional Level 2 Cache (1MB Max)
850MB 11ms SCSI Hard Drive
3 Fast PCI Expansion Slots
Built-in Ethernet (10Base-T & AAUI)
Built-in Graphics w/1MB VRAM upgradeable to 4MB VRAM
Extended Keyboard & Mouse

NEW!

$1899

PowerCurve 601/120 Hot Pick
120MHz PowerPC™ 601+

8MB RAM (256MB Max RAM)
Optional Level 2 Cache (1MB Max)
850MB 11ms SCSI Hard Drive
Quad-Speed (4X) CD-ROM Drive
3 Fast PCI Expansion Slots
Built-in Ethernet (10Base-T & AAUI)
Built-in Graphics w/1MB VRAM upgradeable to 4MB VRAM
14 inch .28 DP Monitor
Extended Keyboard & Mouse

$2499

PowerWave 604/120 Starter
120MHz PowerPC™ 604

16MB RAM (512MB Max RAM)
Optional 256K, 512K, or 1MB Cache
1.0GB 11ms SCSI Hard Drive
Quad-Speed (4X) CD-ROM Drive
3 Fast PCI Expansion Slots
Built-in Ethernet (10Base-T & AAUI)
64-bit PCI Graphics w/2MB VRAM
Desktop Computer Case
Extended Keyboard & Mouse

$3199

PowerWave 604/132 Hot Pick
132 MHz PowerPC™ 604

16MB RAM (512MB Max RAM)
256K Level 2 Cache (1MB Max)
1.0GB 11ms SCSI Hard Drive
Quad-Speed (4X) CD-ROM Drive
3 Fast PCI Expansion Slots
Built-in Ethernet (10Base-T & AAUI)
64-bit PCI Graphics w/2MB VRAM
Extended Keyboard & Mouse

$3699

PowerWave 604/132 MultiMedia
132 MHz PowerPC™ 604

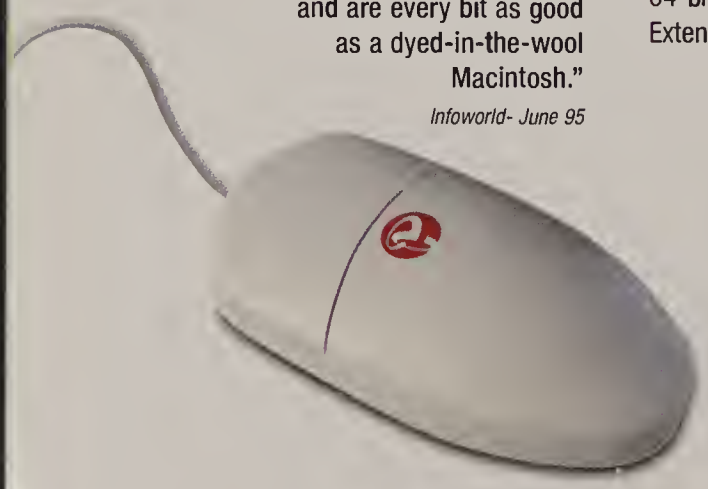
24MB RAM (512MB Max RAM)
256K Level 2 Cache (1MB Max)
1.0GB 11ms SCSI Hard Drive
14 inch .28 DP Monitor
Quad-Speed (4X) CD-ROM Drive
3 Fast PCI Expansion Slots
Built-in Ethernet (10Base-T & AAUI)
64-bit PCI Graphics w/2MB VRAM
Tower Configuration
Extended Keyboard & Mouse

$4299

PowerWave 604/150 Hot Pick
150 MHz PowerPC™ 604

16MB RAM (512MB Max RAM)
512K Level 2 Cache (1MB Max)
1.0GB 11ms SCSI Hard Drive
14 inch .28 DP Monitor
Quad-Speed (4X) CD-ROM Drive
3 Fast PCI Expansion Slots
Built-in Ethernet (10Base-T & AAUI)
64-bit PCI Graphics w/2MB VRAM
Tower Configuration
Extended Keyboard & Mouse

$4799



"With an experienced staff recruited from Dell, APS, and Apple, Power Computing has designed a robust support system... The support is excellent."
Macworld- Aug 95

Check out Power's awesome website and register to win a PowerWave 604 MacOS system. http://www.powercc.com

2555 N. Interstate 35, Round Rock TX 78664-2015
tel. 512/388-6868 fax.512/388-6799
Internet: info@powercc.com

Register to win a PowerWave! http://www.powercc.com

Power Computing Introduces POWERWAVE

Blow Your Mind, Not Your Budget

PowerWave 604/120 Home Office
120MHz PowerPC™ 604

16MB RAM (512MB Max RAM)
Optional 256K, 512K, or 1MB Cache
1.0GB 11ms SCSI Hard Drive
14 inch .28 DP Monitor
Quad-Speed (4X) CD-ROM Drive
Internal Iomega Zip™ Drive
3 Fast PCI Expansion Slots
Built-in Ethernet (10Base-T & AAUI)
64-bit PCI Graphics w/2MB VRAM
Extended Keyboard & Mouse

$3599

OVER $1200 OF FREE SOFTWARE
*BUNDLED WITH EVERY SYSTEM

Mac OS 7.5.2
Insignia's Soft Windows 2.0 60 day trial, Grolier's Multimedia Encyclopedia, Now Utilities, Now Up-to-Date, Now Contact, Intuit's Quicken, FWB HardDisk Toolkit PE, CD-ROM Toolkit, ClarisWorks, America Online, 250 Bitstream Fonts, Launch CD, US CD Atlas, World CD Atlas, The Animals CD-ROM, Nisus Writer

FREE

PowerWave 604/150 XL
150MHz PowerPC™ 604

32MB RAM (512MB Max RAM)
512K Level 2 Cache (1MB Max)
1.0GB 11ms SCSI Hard Drive
15 inch Sony Monitor
Quad-Speed (4X) CD-ROM Drive
Internal Iomega Zip™ Drive
3 Fast PCI Expansion Slots
Built-in Ethernet (10Base-T & AAUI)
64-bit PCI Graphics w/4MB VRAM
Extended Keyboard & Mouse

$5899

Service & Support

30 day money back, Love-Me-Or-I'm-History guarantee. Toll-free lifetime technical support. 1, 2, or 3-year on-site service available, starting at $49.

Go Configure!

Since Power Computing is the manufacturer, you can customize your RAM, hard drive, video and monitor options – just call.

Chosen by Apple® to be the first Mac™OS licensee, we've made Power Computing Apple to the core. Designed and built by briliant, trend-setting Mac engineers to feel like an Apple, run like an Apple, and love people like an Apple, Power Computing has taken something great, and made it even better.

"A machine we love even more than the PowerMac 7500 - the PowerWave 604"

MW★★★★ *Macworld- Feb 96*

ORDER DIRECT AND SAVE
1-800-410-7693

PowerComputing
MORE POWER TO YOU.™

Circle 161 on reader service card

Macworld

THE MACINTOSH® AUTHORITY APRIL 1996

Features

Internet Essentials

86 **Get On the Web**

BY MEL BECKMAN You don't have to be a Unix-head to build your own Internet server. Macworld Lab compares solutions for a Mac-based server and proves the Mac is definitely a contender when it comes to the Web.

Internet Essentials

94 **Stay On the Web**

BY MATTHEW HAWN From small office to big business, everyone's getting on the Net—what about you? Practical advice on how to integrate the Internet with your business, plus a list of ten essentials to keep your site active and profitable.

GIF giving, in NetSmart, page 121.

102 **The Right Tools for the Job**

BY ROBERT C. ECKHARDT Sometimes it's not what Mac you have, but what you have in it. We comb through scores of utilities to come up with a winning combination of productivity tools.

News

News Flash

38 **Shakeup at Apple**

Spindler makes way for a new CEO.

40 **Coming Attractions**

Exciting Copland features and interface refinements previewed at Expo sneak peek.

41 **Internet Watch**

Server security • Try out the latest browsers, and more.

Special Report

46 **Which Port Will It Be?**

Firewire, GeoPort, or USB.

Macworld Exclusive

48 **Quark's Dilemma**

Product and personnel problems nag the page-layout giant.

OCR miniscanner, reviewed, page 75.

Opinion

19 **Letters**

27 **State of the Mac**

BY ADRIAN MELLO Apple: Survival guide for a new era.

33 **The Desktop Critic**

BY DAVID POGUE Eight ways to make a million.

252 **Viewpoint**

BY STEVEN LEVY A visit from our favorite iconoclast.

Adobe Illustrator 6.0: what's new, what's not—reviewed, page 54.

The PowerCurve 601/120—Macworld Lab-tested and reviewed, page 57.

Secrets

111 Comedy of Errors
BY JOSEPH SCHORR Plain-English translations of the Mac's error messages.

115 Quick Tips
BY LON POOLE Tips, tricks, and shortcuts.

121 NetSmart
BY CAMERON CROTTY The hows and whys of encoding electronic files.

Media

125 Sounding Good
BY JIM HEID Tips on how to get the best multimedia sound.

128 Publishing Workshop
BY DAVID BLATNER Clip a little here, crop a little there.

130 Graphics Workshop
BY CATHY ABES Get the most out of customized brushes.

ON THE COVER

Photograph by Kevin Candland; screen image by FPG

Buyers' Tools

133 Affordable Color Printers
BY PETER M STOLLER The proof is in the printing—Macworld Lab tests six ink-jet printers designed for small offices, with surprising results.

155 Consumer Advocate
BY HOWARD BALDWIN How to choose the right Mac for you.

159 Star Ratings
Macworld's ratings for hundreds of hardware and software products at a glance.

Down the CD-ROM road with DVD, page 45.

IDG

April 1996, Volume 13, Number 4 Macworld (ISSN 0741-8647) is published monthly by Macworld Communications, Inc. Editorial and business offices: 501 Second St., San Francisco, CA 94107, 415/243-0505. Subscription orders and inquiries should be directed to 800/288-6848 or 303/604-1465. Subscription rates are $30 for 12 issues, $60 for 24 issues, and $90 for 36 issues. Foreign orders must be prepaid in U.S. funds with additional postage. Add $18 per year for postage for Canada and Mexico subscribers. Add $69 per year for postage to all other countries. Second-class postage paid at San Francisco, California, and at additional mailing offices. **Postmaster:** Send address changes to Macworld, P.O. Box 54529, Boulder, CO 80323-4529. Printed in the U.S.A.

Reviews

54 ★★★★/7.1 **Adobe Illustrator 6.0**
Illustration program

56 ★★★★/8.2 **FileMaker Pro 3.0**
Relational database

57 ★★★★/7.5 **PowerCurve 601/120**
Desktop system

58 ★★★/5.9 **PowerBook Duo 2300c**
Subnotebook

59 ★★★/6.3 **Adobe PhotoDeluxe**
Image-editing package

60 ★★★/5.0 **QuickDraw 3D Accelerator Card;**
★/1.9 **Yarc Screamer**
Accelerator cards

61 ★★★★/8.9 **Retrospect 3.0; Retrospect Remote 3.0**
Backup utility

62 ★★★/6.3 **QuickStream/3;**
★★★★/8.2 **TribeLink2**
Remote-access servers

63 ★★★★/8.0 **CommuniGate**
Client/server messaging software

64 ★★/3.7 **Biz Card Manager;**
★★/3.7 **Biz Card Reader;**
★★/3.8 **VIP Scan**
Business card scanners

66 ★★★★/7.1 **Kiplinger TaxCut;**
★★★★/8.6 **MacInTax Deluxe;**
★★★/5.2 **Personal Tax Edge**
Tax software

67 ★★/4.0 **ProView 1.1;**
★★/3.5 **Mediagnügen 1.0.1**
Multimedia authoring software

69 ★★★★/8.9 **KPT Final Effects 3.0**
After Effects plug-ins

69 ★★★/6.5 **Movie Cleaner Pro 1.1.1**
QuickTime-compression utility

70 ★★★★/7.5 **Hitachi StudioPad**
Graphics tablet

70 ★★★/5.0 **MailKeeper 1.0.2**
Online information database

72 ★★★★/8.5 **Descent 1.0**
Adventure game

72 ★★★★/7.4 **Spreadware Statistics Menu 4**
Statistics software

75 ★★★/6.9 **Mac IRISPen**
Pen OCR scanner

75 ★★/4.9 **STiP Professional 2.1**
Multimedia authoring tool

77 ★★★/5.9 **Sony PC Cam**
Desktop video camera

77 ★★/3.0 **Indexicon 1.0**
Indexing program for Word 6

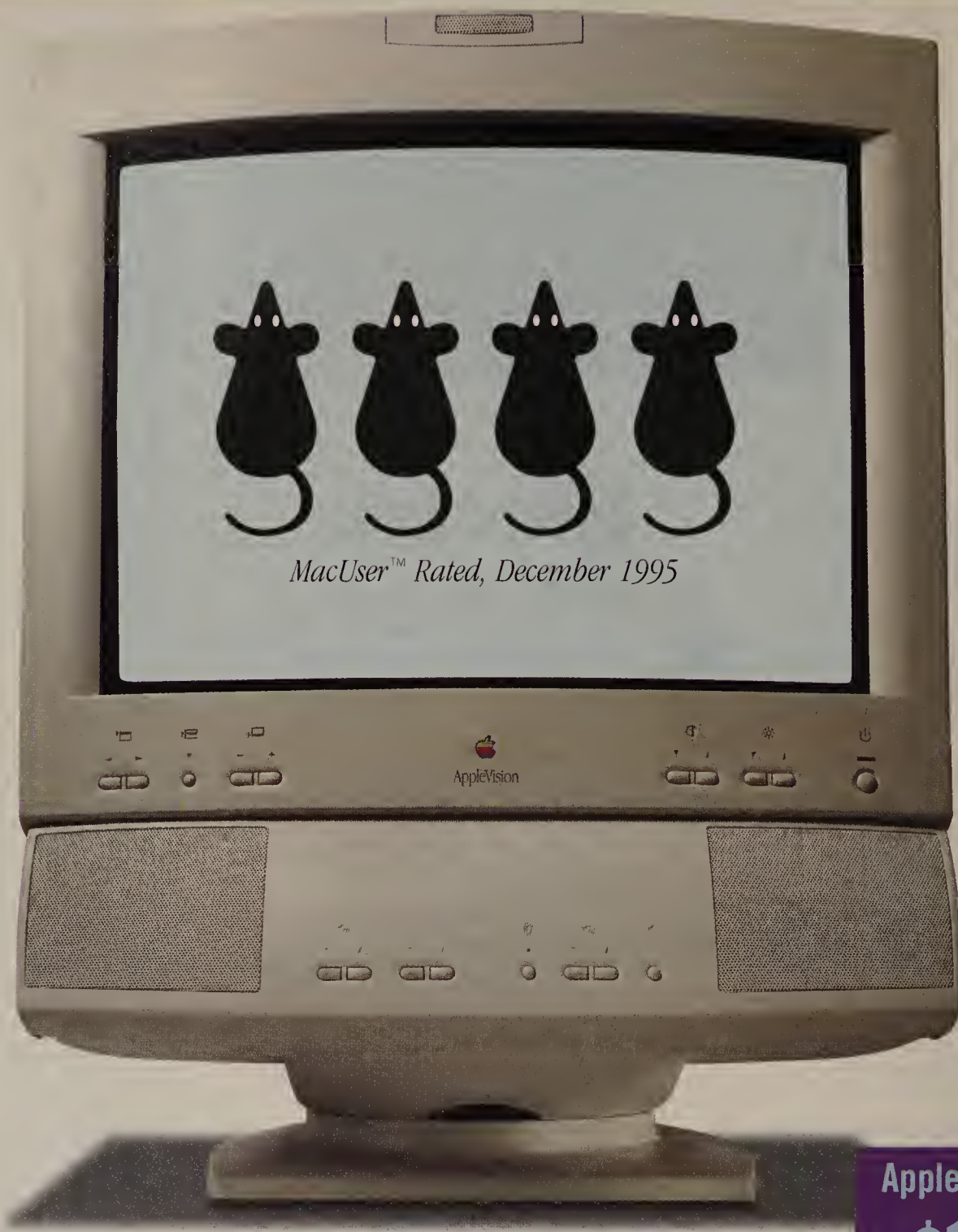
78 ★★★★/8.6 **The Cartoon Guide to Physics**
Educational CD-ROM

80 ★★★★/8.8 **In the 1st Degree**
Interactive adventure game

82 ★★/4.4 **MapLinx 3.0**
Mapping software

84 ★★★/6.5 **theFONDler 4.0.1**
Font utility

When it comes to rating multimedia monitors,



AppleVision® 1710AV

$1159*

MacUser *magazine recently put some of the leading multimedia monitors through their paces. They performed lab tests on image and sound quality. They stared at test documents, line art and scanned images. They played their favorite CD's at various levels. They fiddled with knobs and on-screen controls. And they researched street prices and warranties.*

After all the results were in, the ViewSonic 17GA 17" (16.0" viewable) PerfectSound™ multimedia monitor was singled out as the "Best Buy."

No wonder. An entirely new technology creates the ultimate screen image – maximum resolution of 1,280 x 1,024, refresh rates as high as 160Hz, and razor sharp screen definition.

And listen to this. High fidelity speakers are integrated into the monitor bezel so the full, rich stereo sound envelopes you. To quote a satisfied customer, "It rocks, man!"

MacUser RATED DECEMBER 1995

And the 17GA is so attractively priced, it's like getting the multimedia feature for free. Several competitive models cost as much but are not even multimedia monitors.

Rather than toot our own horn, perhaps we should refer you to MacUser *magazine:*

Call Product Information Services at 888-908 • 909 869-7916 Fax 909 869-7958 • Call ViewSonic at 909 869-6818 24 hour fax on demand • Request Doc • Internet http www.viewsonic.com • © 1996 ViewSonic Corporation Corporate names and trademarks are the property of their respective companies

mice are nice but checks are better.

ViewSonic® 17GA

$850*

"A real multimedia bargain," they said, "the ViewSonic 17GA offers solid image quality, warm colors, fine-sounding audio and a slew of easy-to-use on-screen controls." So when you're ready to buy, remember this: Many 17" (various viewable) multimedia monitors come with mice, but only the ViewSonic 17GA has been selected as MacUser *magazine's "Best Buy."*

+/OUTSTANDING •/ACCEPTABLE –/POOR

RATING	PRODUCT	PRICE	SUPPORT	IMAGE QUALITY	SOUND QUALITY
★★★★	ViewSonic 17GA	•	•	+	•
BEST BUY	A real multimedia bargain, the ViewSonic 17GA (estimated street price, $850) offers solid image quality, warm colors, fine-sounding audio, and a slew of easy-to-use on-sreen controls—all at a competitive price. The stylish case will also make you the envy of your office mates.				
★★★★	Apple Apple Vision 1710AV	–	•	+	+
★★★½	IBM 17S/S	–	•	•	+
★★★½	Nokia 447W	•	•	+	–
★★★½	Panasonic Pana Media 17	•	+	•	•
★★★	Philips 17B	•	•	•	–
★★½	Philips Brilliance 15A	•	•	•	–

Reprinted from "MACUSER," December 1995. Copyright © 1995 Ziff-Davis Publishing Company

* Estimated street price per "MACUSER" magazine, December 1995

ViewSonic®

Circle 59 on reader service card

AnthroCarts®!

AnthroCarts are *so* flexible. You have dozens of shapes and sizes to choose, plus over 50 accessories to configure your cart exactly the way *you* want.

And they have a Lifetime Warranty! Made of steel and high density particle board, these AnthroCarts are as tough as nails.

See them all in our catalog, then call us direct to order. We'll ship to you the very next business day!

Call for your free catalog:

800-325-3841

6:00 AM to 6:00 PM PST, M–F

ANTHRO®

Anthro Corporation®
Technology Furniture®
10450 SW Manhasset Dr.
Tualatin, OR 97062
Fax: 800-325-0045
E-mail: sales@anthro.com

Since 1984. Prices from $299. For a lower cost line for the home, ask for our SOHO catalog. GSA contract. Available for OEM applications. Anthro, AnthroCart and Technology Furniture are registered trademarks of Anthro.

Macworld

PRESIDENT/PUBLISHER	Colin Crawford
ASSISTANT TO THE PRESIDENT	Sharon Sanderson
CHIEF OPERATING OFFICER	Stephen Daniels
BUSINESS MANAGER	Lisa Buckingham
FINANCE ASSISTANT	Eos de Feminis
DIRECTOR OF HUMAN RESOURCES	Shelly Ginenthal
EMPLOYEE RELATIONS MANAGER	Marisa Chow
NETWORK MANAGER	Walter J. Clegg
IS TECHNICIANS	Dave Johnson, Theodore Kim
PROGRAMMER/ANALYST	Frederic Desbois
ADMINISTRATIVE ASSISTANT	Ginger Von Wening
CORPORATE BUSINESS MANAGER	Christina W. Spence
ACCOUNTING/OPERATIONS	Pat Murphy
ACCOUNTING/FACILITIES MANAGER	Michelle Reyes

Macworld, published by Macworld Communications, Inc., a wholly owned subsidiary of International Data Group, publishes 27 local-language editions of *Macworld* around the world. *Macworld* also sponsors the Macworld Expo in 12 cities around the world and has interests in book and CD-ROM publishing, online services, and international research. Headquartered in Boston, International Data Group has annual revenues of more than $1.1 billion and 7200 employees. Its publishing subsidiary, IDG Communications, publishes more than 235 newspapers and magazines in 65 countries. IDG's trade book division, IDG Books Worldwide, is the fastest-growing computer book publisher with 50 percent of the top ten selling computer books, with foreign translations in over 24 languages. IDG's research subsidiary, International Data Corporation (IDC), is the leading market-research and -analysis firm covering the computer field. Its exposition management subsidiary, IDG Exposition Services, runs 64 computer-related exhibitions and conferences in over 22 countries. International Data Group's publications include: **ARGENTINA'S** Computerworld Argentina, Infoworld Argentina; **ASIA'S** Computerworld Hong Kong, PC World Hong Kong, Computerworld Southeast Asia, PC World Singapore, Computerworld Malaysia, PC World Malaysia; **AUSTRALIA'S** Computerworld Australia, Australian PC World, Australian Macworld, IDG Sources, Reseller, Network World, Mobile Business Australia; **AUSTRIA'S** Computerwelt Oesterreich, PC Test; **BELGIUM'S** Data News (CW); **BRAZIL'S** Computerworld, Game Power, Super Game, Gamepro, Mundo IBM, Mundo Unix, PC World; **BULGARIA'S** Computerworld Bulgaria, Ediworld, PC & Mac World Bulgaria, Network World Bulgaria; **CANADA'S** Direct Access, Graduate Computerworld, InfoCanada, Network World Canada; **CHILE'S** Computerworld, Informatica; **COLOMBIA'S** Computerworld Colombia; **CZECH REPUBLIC'S** Computerworld, Elektronika, PC World, **DENMARK'S** CAD/CAM WORLD, Communications World, Computerworld Danmark, LOTUS World, Macintosh Produktkatalog, Macworld Danmark, PC World Danmark, PC World Produktguide, Windows World; **ECUADOR'S** PC World; **EGYPT'S** Computerworld Middle East, PC World Middle East; **FINLAND'S** MikroPC, Tietoviikko, Tietoverkko; **FRANCE'S** Distributique, Golden Mac, InfoPC, Languages & Systems, Le Guide du Monde Informatique, Le Monde Informatique, Telecoms & Reseaux; **GERMANY'S** Computerwoche, Computerwoche Focus, Computerwoche Extra, Computerwoche Karriere, Information Management, Macwelt, Netzwelt, PC Welt, PC Woche, Publish, Unit; **GREECE'S** Infoworld, PC Games; **HUNGARY'S** Alaplap, Computerworld SZT, PC World, PC Virlag; **INDIA'S** Computers & Communications; **IRELAND'S** Computerscope (Computerworld); **ISRAEL'S** Computerworld Israel, PC World Israel; **ITALY'S** Computerworld Italia, Lotus Magazine, Macworld Italia, Networking Italia, PC World Italia; **JAPAN'S** Information Systems World, Computerworld Today, Nikkei Personal Computing (PCW), Macworld Japan, SunWorld Japan, Windows World, **KENYA'S** East African Computer News; **KOREA'S** Computerworld Korea, Macworld Korea, PC World Korea; **MEXICO'S** Compu Edicion, Compu Manufactura, Computacion/Punto de Venta, Computerworld Mexico, MacWorld, Mundo Unix, PC World, Windows, **THE NETHERLANDS'** Computable (CW), Computerl Totaal, LAN Magazine, MacWorld; **NEW ZEALAND'S** Computer Listings, Computerworld New Zealand, New Zealand PC World, **NIGERIA'S** PC World Africa; **NORWAY'S** Computerworld Norge, C/world, Lotusworld Norge, Macworld Norge, Networld, PC World Ekspress, PC World Norge, PC World's Product Guide, Publish World, Student Data, Unix World, Windowsworld, IDG Direct Response; **PANAMA'S** PC World Panama; **PERU'S** Computerworld Peru, PC World; **PEOPLE'S REPUBLIC OF CHINA'S** China Computerworld, China Infoworld, China Network World, PC World China, IDG Shenzhen's Computer News Digest, Electronics International, IDG HIGH TECH Beijing's New Product World, **PHILIPPINES'** Computerworld, PC World; **POLAND'S** Computerworld Poland, PC World/Komputer, **PORTUGAL'S** Cerebro/PC World, Correio Informatico/Computerworld, MacIn; **ROMANIA'S** PC World, Computerworld. **RUSSIA'S** Computerworld-Moscow, Mir-PC, Sety; **SLOVENIA'S** Monitor Magazine; **SOUTH AFRICA'S** Computing S.A., Network World S.A., Computer Mail; **SPAIN'S** Amiga World, Computerworld Espana, Communicaciones World, Macworld Espana, NextWorld, PC World Espana, Publish, Sunworld, Super Juegos Magazine (GamePro); **SWEDEN'S** Attack, ComputerSweden, Corporate Computing, Lokala Natverk/LAN, Lotus World, MAC&PC, Macworld, Mikrodatorn, PC World, Publishing & Design (CAP), Datalngenjoren, Maxi Data, Windows World, **SWITZERLAND'S** Computerworld Schweiz, Macworld Schweiz; **TAIWAN'S** Computerworld Taiwan, Global Computer Express, PC World Taiwan, **THAILAND'S** Thai Computerworld, **TURKEY'S** Computerworld Monitor, Macworld Turkiye, PC World Turkiye, **UKRAINE'S** Computerworld, **UNITED KINGDOM'S** Computing/Computerworld, Connexion/Network World, Lotus Magazine, Macworld, Sunworld, **UNITED STATES'** AmigaWorld, Cable in the Classroom, CD Review, CIO, Computerworld, Desktop Video World, DOS Resource Guide, Electronic Entertainment Magazine, PlayRight, Power PC World, Federal Computer Week, Federal Integrator, GamePro, IDG Books, InfoWorld, InfoWorld Direct, Laser Event, Macwond, Multimedia World, Network World, PC Letter, PC World, Publish, SunWorld, SWATPro, Video Event, **VENEZUELA'S** Computerworld Venezuela, MicroComputerworld Venezuela, **VIETNAM'S** PC World Vietnam

YOUR SINGLE BUTTON INTERNET ACCESS

NET COMMANDER™

EASY TO SET UP - EASY TO USE- EASY ACCESS

NET COMMANDER is an all-in-one Internet software package that has everything you need. Starting with a single button Internet registration, automatic set up and configuration of over 30 Internet applications including Phone, E-mail, News Reader, Luckman's Official World Wide Web Yellow Pages, Virtual Reality, and all audio players and video viewers to fully experience the Net. The Internet will be yours to command!

Call Today: 1-800-711-2676 | $79.00 SRP

Luckman Interactive, Inc.
E-Mail: info@luckman.com
http://www.luckman.com
1055 West 7th Street, Suite 2580, Los Angeles, CA 90017

1996 Luckman Interactive, Inc. All rights reserved. NET COMMANDER is a trademark of Luckman Interactive, Inc. All others are trademarks of their respective owners.

Circle 65 on reader service card

New! Expansion Bay 230MB Magneto-Optical Drive

VST Technologies' Expansion Bay Magneto-Optical Drive is the perfect portable backup solution for PowerBook 190 & 5300 users.
Each removable Magneto-Optical disk holds up to 230MB of data, providing virtually limitless storage and archiving space! Plug-N-Play simplicity.

- Hot swappable — no need to sleep, shutdown or restart
- Uses ISO standard 128MB and 230MB MO disks — compatible with desktop MO SCSI drives
- Disks offer unlimited read and rewrite — provides reliable, inexpensive archiving of your most valuable files
- *Part # MOD5000 — $449.95 MSRP*

Also for PowerBook 190s & 5300s

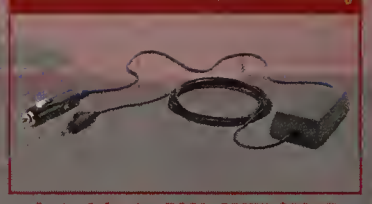
Charger & Internal Batteries

Charger 5000 MSRP $189.95
PowerBook 190/5300 Internal Battery MSRP $169.95
Battery/Charger bundle MSRP $329.95

Expansion Bay Hard Drives

540MB Hard Drive MSRP $549.95
810MB Hard Drive MSRP $699.95
1.2 GB Hard Drive MSRP $879.95

Auto Adapter



Auto Adapter 5000 MSRP $99.95

VST Technologies • 1620 Sudbury Road • Suite 3 Concord, MA 01742
(508) 287-4600 • (508) 287-4068 Fax

VST TECHNOLOGIES

Circle 73 on reader service card

Plug-In With Xaos Tools & Unleash Your Creative Power!

TypeCaster: 3D Text Plug-In
- Render any Postscript™ or TrueType™ font
- Quick & Easy 3D Text inside Photoshop
- Bonus CD-ROM with 200 Free Textures

Paint Alchemy: Paint Effects Plug-In
- Turn any Image into a Painting
- 101 Pre-Installed Paint & Organic Styles

Terrazzo: Seamless Tiling Plug-In
- The Ultimate Web Page Tile Generator
- Creates Limitless Tiled Textures & Patterns

Coming in April Version 2 Native Upgrade

Accelerated for Power Macintosh

MacWarehouse 800-255-6227
MacZone 800-248-0800

for more on powerful, easy-to-use adobe photoshop™ plug-ins call
800-289-9267
http://www.xaostools.com

XAOS tools

© 1996 Xaos Tools Inc., 600 Townsend, Ste. 270E, San Francisco, CA 94103 PHONE: 415-487-7000 FAX: 415-558-9886 AOL: XaosTools Internet: macinfo@xaostools.com. Paint Alchemy, Terrazzo & TypeCaster are trademarks and Xaos Tools is a registered trademark of Xaos Tools, Inc. All other product names are trademarks of their respective owners. "The Face" by Vic. Stopf, "Apples & Oranges" by David Teich.

Circle 13 on reader service card

Macworld

EDITOR-IN-CHIEF — Adrian Mello

EDITORIAL

EXECUTIVE EDITORS — Galen Gruman, Carol Person
EDITORIAL PRODUCER — Barbara Assadi
DIRECTOR OF EDITORIAL OPERATIONS — Jane Lagas
SENIOR EDITOR/FEATURES — Charles Piller
SENIOR EDITOR — Howard Baldwin
SENIOR ASSOCIATE EDITOR/DEPARTMENTS — Marjorie Baer
SENIOR ASSOCIATE EDITORS — Anita Epler, Dan Littman
ASSOCIATE EDITOR/REVIEWS — Wendy Sharp
ASSOCIATE EDITORS — Cathy E. Abes, Linda Comer, Cameron Crotty, Elizabeth Dougherty
ASSISTANT EDITORS — Suzanne Courteau, Jim Feeley
ADMINISTRATIVE ASSISTANT — Roxanne Gentile
ASSISTANT TO THE EDITOR-IN-CHIEF — Patricia Carberry-Harris
CONTRIBUTING EDITORS — Robert C. Eckhardt, Erfert Fenton, Jim Heid, Steven Levy, Cary Lu, Deke McClelland, Tom Negrino, David Pogue, Lon Poole, Steve Roth, Joseph Schorr, Charles Seiter, Franklin N. Tessler
INTERNATIONAL EDITORS — Osmund Iversen, Australia; Vinicius Souza, Brazil; Marianne Fajstrup, Denmark; Michael Thevenet, France; Stephan Scherzer, Germany; Guilio Ferrari, Italy; Osamu Honma, Japan; Jessica Monreal, Mexico; Oscar Kneppers, Netherlands; Toralv Ostvang, Norway; Alvaro Ibariez, Spain; Nicklas Mattsson, Sweden; Cuno Schneeberger, Switzerland; Bahattin Apak, Turkey; Peter Worlock, United Kingdom

LAB

LAB DIRECTOR — Lauren L. Black
SENIOR TECHNICAL ANALYSTS — Mark Hurlow, Jeff Sacilotto
TECHNICAL ANALYSTS — Matthew R. Clark, Danny Lee
INVENTORY CONTROLLER — Paul Brown

COPY EDIT AND EDITORIAL PRODUCTION

ASSISTANT MANAGING EDITOR — Ruth Henrich
SENIOR COPY EDITOR — Katherine L. Ulrich
SENIOR PRODUCTION EDITOR — Lisa Brazieal
COPY EDITORS — Paul-Michael King, Gail E. Nelson
ASSISTANT PRODUCTION EDITOR — Jackie Goodman

ART AND DESIGN

ACTING DESIGN DIRECTOR — Leslie Barton
ART DIRECTOR — Joanne Hoffman
SENIOR DESIGNER/INFORMATIONAL GRAPHICS — Arne Hurty
ASSOCIATE ART DIRECTOR — Sylvia Benvenuti
ASSOCIATE DESIGNER — Tim Johnson
SENIOR DESIGN ASSOCIATE — Martha Katt
DESIGN ASSOCIATES — Rachel Arnold, Belinda Chlouber

ONLINE

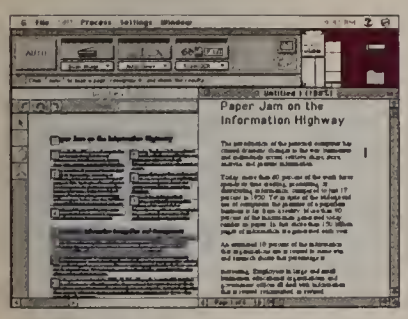
EDITOR — Suzanne Stefanac
ONLINE SALES MANAGER — Jeff Julian
WEB ADMINISTRATOR — Chip Carman
ONLINE ADMINISTRATOR — Steve Costa
CONTENT ENGINEER — Paul Devine
ONLINE PRODUCTION EDITOR — Matthew Hawn
PRODUCTION ASSISTANT — Kristine Moss
FLUEGELMAN INTERN — Karen Liberatore

NEW
VERSION 6.0

TURN YOUR SCANNER INTO A WORLD-CLASS TYPIST.

INTRODUCING OMNIPAGE PRO 6.0— IT'S FASTER, EASIER AND MUCH MORE ACCURATE.

Tired of retyping faxes, reports, articles, even letters into your Macintosh? With OmniPage® Pro 6.0 and your scanner, you can accurately enter thousands of words per minute with the simple push of a button.



OmniPage Pro 6.0 is ten times quicker than the fastest typist—and still delivers pinpoint accuracy.

OmniPage Pro 6.0's industry-leading Optical Character Recognition (OCR) software converts your scanned pages to editable text and graphics in seconds for use in popular Mac applications like Word, WordPerfect, Quark Xpress, Excel and many others. So you get to spend more time producing instead of manually typing.

And OmniPage Pro 6.0's blazing speed, which is even faster on Power Mac systems, is only outdone by its superior accuracy. It recognizes all fonts at virtually any size. It flags suspicious words, then corrects them for you. It accurately interprets hard-to-read faxes and copies using gray-scale information. And it even reads unique characters and special symbols.

"Powerful and faster, Caere's OCR stalwart scores high on accuracy."
MacUser January 1995

Without doubt OmniPage Pro 6.0 is the smartest OCR software you can buy. So call and order a copy today or visit your local reseller.

MacUser MW ★★★★ NOVEMBER 1994 MacWEEK AUGUST 1994

SPECIAL UPGRADE

$149*

70% OFF RETAIL PRICE

Upgrade from OmniPage Limited Edition, OmniPage Lite, WordScan or other versions of OmniPage (including those bundled in your scanner) and get the best OCR!

- 65% more accurate
- 35% faster
- Enhanced, easy-to-use AutoOCR Toolbar™
- Retain original page layout with True Page®
- 24-bit image editor
- Accelerated for Power Macintosh
- Interactive Apple Guide assistance

800-736-5735

Call Ext. 80 today!

caere®

*Suggested price US dollars—subject to change without notice. Offer valid in US and Canada only. Caere, the Caere logo, OmniPage, WordScan and True Page are registered trademarks and AutoOCR Toolbar is a trademark of Caere Corporation. All other names are the property of their respective holders. © 1995.

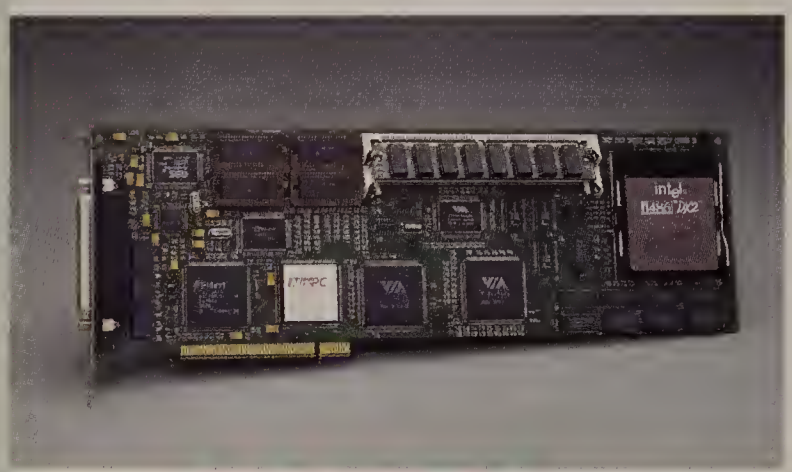
Circle 69 on reader service card

the
ULTIMATE
MAC PC CARD

Prices start at: **$599** Includes DX2/66, 4MB & MS-DOS

$699 with Game Port Sound Blaster & Free Doom™ PC Game

Run any PC Game with full 16 bit Sound!



© Oranger Micro, inc 1996

MacPC™

Put a MacPC Card into your Mac, and it becomes a PC, with your choice of DOS™, Windows® or Windows®95. Ideal for home, education, and small business.

- Runs all PC Games & Programs on your Mac!
- Game Port and 16 bit **Sound Blaster**® In/Out, Serial and Parallel Ports.
- MacPC runs on **all** PCI Power Macintoshes.
- MacPC **options** include: Networking Software, Windows or Windows 95, Intel® DX4/100 Processor, 1 Mb Video DRAM upgrade.

Available at:
MacPowerhaus (800) 615-3183
And other major Apple® retailers.

Orange Micro Inc.
"16 Years of Innovation and Excellence"

Circle 33 on reader service card

Macworld

DISPLAY ADVERTISING SALES

ASSOCIATE PUBLISHER	Matt Sweeney (415/978-3271)
NATIONAL SALES DIRECTOR	Steve Plevin (415/978-3138)
SALES DEPARTMENT COORDINATOR	Toni May (415/975-2638)
SALES DEVELOPMENT DIRECTOR	Suzanne Saluti (415/975-2624)
SALES DEVELOPMENT COORDINATOR	Leslie Black (415/978-3160)
NATIONAL ACCOUNTS MANAGER	Lois Brennan (415/978-3262)
ACCOUNT EXECUTIVE	Liz Pabon (415/978-3257)
NATIONAL ACCOUNTS MANAGER	Karl Elken (415/978-3155)
ACCOUNT EXECUTIVE	Christine Wong (415/978-3192)
ADMINISTRATIVE ASSISTANT	Eva Bosch (415/974-7310)
NATIONAL ACCOUNTS MANAGER	Sara Culley (310/545-0646)
ACCOUNT EXECUTIVE	Gabrielle Silverman Green (415/267-4521)
ADMINISTRATIVE ASSISTANT	Margaret Level Green (714/250-1307)
NATIONAL ACCOUNTS MANAGER	Cynthia Ramsey (201/243-1197)
NATIONAL ACCOUNTS MANAGER	Paul Bonarrigo (508/872-8600)
ACCOUNT EXECUTIVE	Kelly Burke (415/978-3164)
NATIONAL ACCOUNTS MANAGER	Lisa Ladle (800/779-5622)
ACCOUNT EXECUTIVE	Kathy Poppenhagen (708/827-4477)
ADMINISTRATIVE ASSISTANT	Kim Giovanni (708/827-4477)

MAIL ORDER/CLASSIFIED ADVERTISING SALES

ACCOUNT MANAGERS/MAIL ORDER	Edward Ramirez (415/974-7413), Lisa Weisberg (415/978-3117)
MACWORLD SHOPPER	800/888-8622
	Niki Stranz (415/978-3105), Carol Johnstone (415/978-3152), Shannon Smith (415/974-7414)
ACCOUNT MANAGER/MW DIRECTORY	Bethany A. Baller (415/978-3276)

MACWORLD GLOBAL PRODUCT SUPPORT CENTER

DIRECTOR OF MARKETING AND COMMUNICATIONS	Kimberlee A. Luedee
MARKETING ASSOCIATE	Alisson Walsh

MARKET RESEARCH

RESEARCH DIRECTOR	Linda Lawrence
RESEARCH ANALYSTS	Phillip Hibbert, Matt McAlister

MARKETING

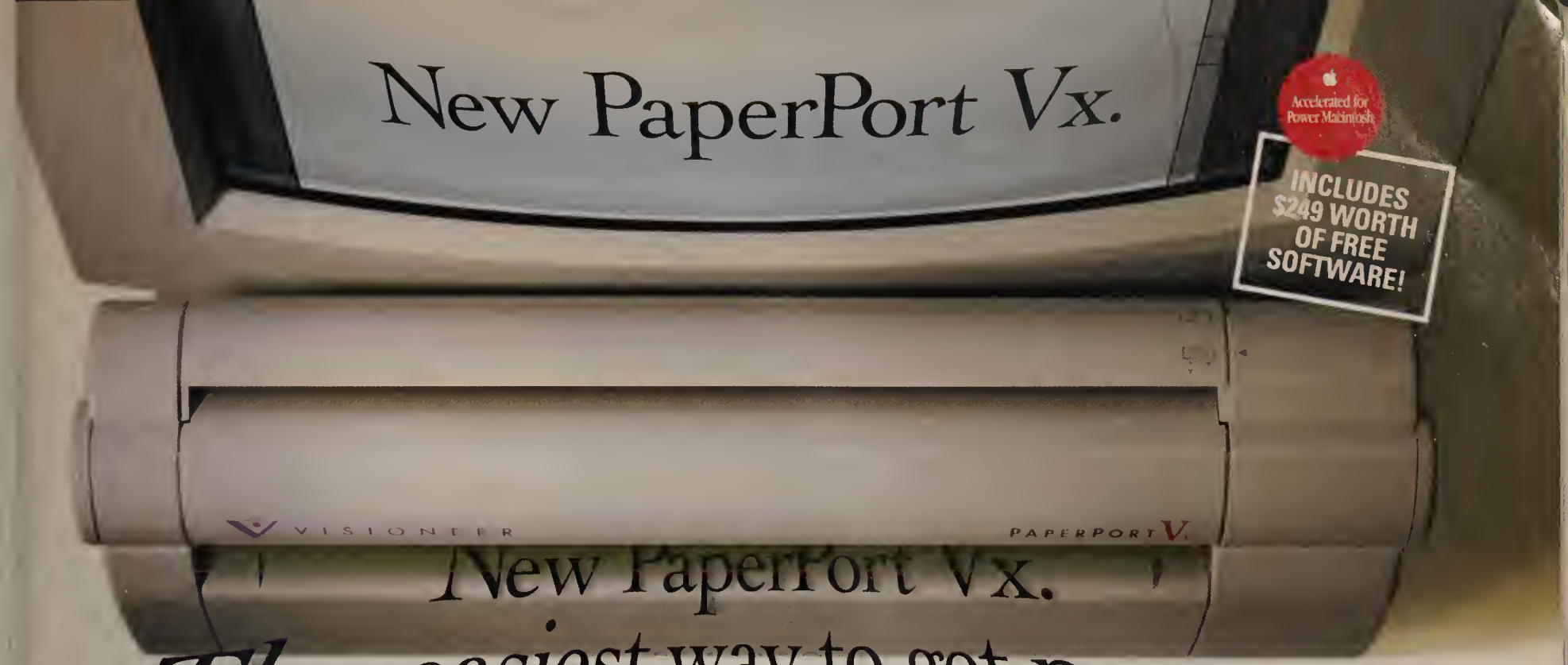
MARKETING DIRECTOR	Cynthia Koral
MARCOM MANAGER	Rhona Hamilton
TRADE SHOW/EVENTS MANAGER	Anna Noetzel
MARKETING ASSOCIATE	Shannon McArdle

CIRCULATION

VICE PRESIDENT/DIRECTOR OF CIRCULATION	Angelina Beitia
SINGLE-COPY SALES DIRECTOR	George Clark
SENIOR CIRCULATION MANAGER	Lori Hitchcock
CIRCULATION MANAGER	Elizabeth Jensen
NEWSSTAND SALES MANAGER	Martin Garchar
PROMOTION MANAGER	Kelvin Gee
NEWSSTAND COORDINATOR	Dalia Schwartz
SUBSCRIPTION COORDINATOR	Peter Ho
NEW BUSINESS COORDINATOR	Geoffrey Walls
SUBSCRIPTION INQUIRIES	800/288-6848

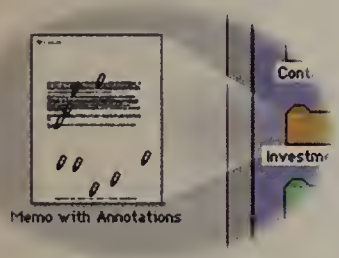
PRODUCTION

VICE PRESIDENT/DIRECTOR OF MANUFACTURING	Anne Foley
PRODUCTION MANAGER	Cynthia Neustadt
ASSISTANT PRODUCTION MANAGER	David W. McAferty
BILLING INFORMATION MANAGER	So Fong Yip
DTP COORDINATOR	Clayton Haberman
BILLING ASSISTANT	Lily Cheung

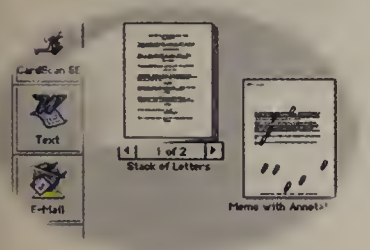


New PaperPort Vx.

The easiest way to get paper *into* your Mac.



Organize everything easily.
Mark-up your documents, then drag them to and from folders on your hard disk. Instantly find whatever you need with our powerful search tools.



Copy, fax, and edit—at your fingertips.
Just drag and drop your document to your fax, e-mail, word processors, printers—and more. You'll never again have to babysit the fax machine or wait in line for the copier.

With Visioneer's new PaperPort Vx, you can get paper into your Mac in as little as two seconds—and put it to work with unmatched simplicity and speed.

Get paper in fast.

Just feed *any* piece of paper (up to 8.5" wide and 30" long)—a letter, photo, newsclip, receipt, business card—into PaperPort Vx. In seconds, it appears on your screen. Crisp and clear. Easy to read. And ready to be faxed or e-mailed, edited or copied, printed or filed with incredible ease.

Put it to work—instantly.

PaperPort Vx has direct links to hundreds of the most popular software applications, so you can automatically integrate paper into the applications you use everyday—your fax, on-line service, word processor, contact manager, spreadsheet, and many more.

Do even more with $249 worth of free software.

PaperPort Vx includes the latest OmniPage LITE™ OCR software to transform scanned paper into editable text; Corex CardScan SE™ to automatically turn your pile of business cards into an electronic card-file of contacts; and PictureWorks Copier™ to turn your computer and printer into an instant copy machine—with powerful features to resize your image and put multiple items (like receipts and business cards) on a single page.

Superior readability, superior results.

Only PaperPort Vx gives you exclusive SharpPage™ technology. So you get crisper scanned text—and your fax recipients get extremely legible pages, with no unreadable black blotches. And with up to 256 shades of gray, PaperPort Vx accurately captures your snapshots and graphics—even magazine pages.

So, instead of running papers around your office, use PaperPort Vx to zip them into your Mac where you can put them to work. To find out more, call us at 1-800-787-7007, Ext. 604 or see your local dealer.

Super-small, super convenient.
PaperPort Vx fits between your keyboard and monitor, and installation couldn't be easier. Just plug it into your modem or printer port.

Award-winning.
PaperPort has won the most prestigious awards for its usability and design.

VISIONEER

PAPERPORT Vx

©1995 Visioneer, Inc. All rights reserved. Visioneer, PaperPort, PaperPort Vx, SharpPage and PaperPort Links are trademarks of Visioneer. The Visioneer logo is a registered trademark. Other brands and product names are trademarks of their respective companies.

Circle 18 on reader service card

"The Best Mac Desk Ever."

NEW!

- Ergonomic
- Fully Adjustable
- Strong
- Guaranteed
- VAR Inquiries Welcome

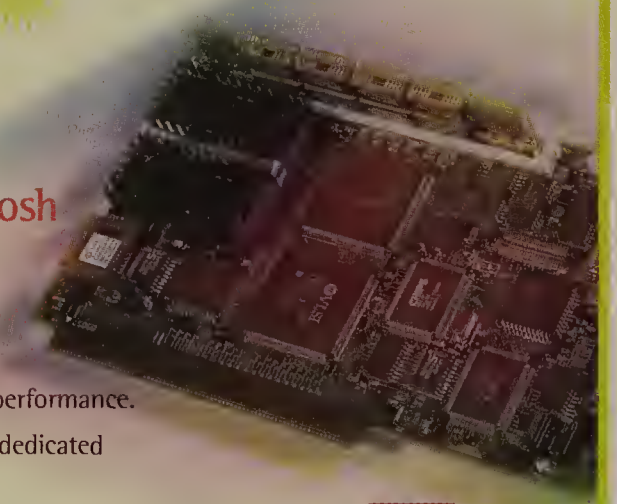
agio™
BEAVERTON, OREGON

Free Catalog! 800.688.2446

| Phone 503. 690.1400 | FAX 503. 690.1423 | Europe 011.41.62.631026 | Japan 011.81.3.3583.0436 | ups

SUPPORTS WINDOWS 95

Simply the fastest way to run DOS and Windows on your Power Macintosh



Run any Windows® 95, Windows® or DOS application on your Power Macintosh™ 6100, 7100 or 8100 computer.

- Plugs into the PDS slot to deliver the fastest performance.
- Processes instructions at up to 100MHz with dedicated 486 or 5x86 processors.
- Provides direct access to all your Mac peripherals including monitor, printer, hard drive, CD ROM drive, network, modem, and more.
- Copy and paste information between Macintosh and Windows applications.
- Dual-processing runs Mac and DOS/Windows applications at the same time.
- Optional Ethernet and Token Ring support with dual TCP/IP.
- Supports SoundBlaster™ 16 with optional daughtercard.

Prices start at $695

Reply's original DOS on Mac card is also available for Macintosh Centris 610 and 650 computers and Quadra 610, 650, 700, 800, 900 and 950 computers.

PCI solutions available in the second quarter of 1996.

Reply and the Reply logo are trademarks of Reply Corporation.
All other product names referenced herein are trademarks of their respective companies.

MW EDITORS' CHOICE

CALL 1 800 801 6898

reply

tel 408 942 4804_fax 408 956 2793
http://www.reply.com

Macworld

HOW TO CONTACT MACWORLD

Subscription Questions

Phone	Mainland USA 800/288-6848
	All other locations 303/604-1465
Fax	303/604-7644
U.S. Mail	Subscription Services
	P.O. Box 54529, Boulder, CO 80322-4529
E-Mail	*subhelp.macworld@neodata.com*

REPRINTS AND PERMISSIONS Address requests for reprint orders and for permissions to copy editorial for other purposes to Reprints and Permissions, Editorial Department.

Permission will be granted by the copyright owner for those registered with the Copyright Clearance Center (CCC) to photocopy any article herein—for personal or internal reference use only—for the flat fee of $1.50 per copy of the article or any part thereof. Specify ISSN 0741-8647 and send payment directly to the CCC at 27 Congress St., Salem, MA 01970.

Back Issues of Macworld

Back issues are $7 per issue for U.S. delivery ($12 overseas); prepayment in U.S. funds is required. Make checks or money orders payable to Macworld Magazine and mail along with a written request to Macworld Back Issues, c/o Snyder Newell, P.O. Box 7046, San Francisco, CA 94120-9727.

Macworld in Microfilm

Macworld is available on microfilm and microfiche from UMI, 300 N. Zeeb Rd., Ann Arbor, MI 48106-1346; 313/761-4700.

Macworld Editorial

Our offices are located at 501 Second St., San Francisco, CA 94107; 415/243-0505, fax 415/442-0766. Internet: *macworld@macworld.com*; *70370.702@compuserve.com*; *macworld1@applelink.apple.com*.

Readers can contact editors directly via the Macworld forum on America Online (keyword *Macworld*) or Macworld Online's Web site (*http://www.macworld.com*).

LETTERS TO THE EDITOR Direct all comments, questions, and suggestions regarding any aspect of the magazine to Letters to the Editor (*letters@macworld.com*). All mail is read by our editor. We reserve the right to edit all submissions; letters must include your name, address, and telephone number.

QUICK TIPS Send your questions or tips on how to use Mac computers, peripherals, or software to the attention of *Quick Tips*. Please include your name, address, and telephone number.

CONSUMER ADVOCATE Been burned? Ripped off? Direct your concerns (by mail only) to *Consumer Advocate*. Include your address and phone number as well as the address of the vendor. We also encourage you to include copies of correspondence exchanged with the vendor in question.

BUGS AND TURKEYS Send us descriptions of turkeys (flaws in conception or design) and bugs (defects or flaws in execution) with your telephone number, mailing address, and T-shirt size.

STREETWISE SHOPPER Vendors and resellers, fax requests to obtain an application for inclusion of special product promotions in *Streetwise Shopper*.

WRITING FOR MACWORLD If you're interested in writing for us, send a self-addressed, stamped envelope with a request for our writer's guidelines. Do not send unsolicited manuscripts.

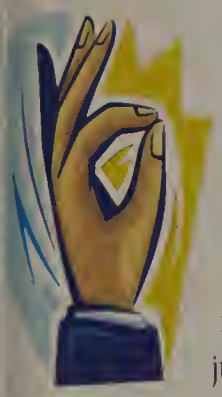
FOUNDER David Bunnell
FOUNDING EDITOR Andrew Fluegelman 1943–1985

Macworld is a publication of Macworld Communications, Inc. *Macworld* is an independent journal not affiliated with Apple Computer, Inc. *Macworld*, *Macworld Interactive*, *Macworld Shopper*, *MW*, *MW Lab*, *MW Shopper*, *The Desktop Critic*, *Expert Graphics*, *Quick Tips*, *Star Ratings*, *Buyers Tools*, *Streetwise Shopper*, and *Conspicuous Consumer* are registered trademarks of International Data Group, Inc. *Power PC World* and *Secrets* are trademarks of IDG, Inc. APPLE, the APPLE LOGO, MAC and MACINTOSH are registered trademarks, and MACLETTER and POWERBOOK are trademarks of Apple Computer, Inc. Printed in the United States of America. Copyright © 1996 Macworld Communications, Inc. All rights reserved. *Macworld* is a member of IDG Communications, the world's largest publisher of computer-related information.

BPA INTERNATIONAL IDG

QuickBooks is right for your business, or you don't pay.

NEW! VERSION 4.0



We guarantee QuickBooks® will fit your business so well, you'd swear it was custom made just for you.

Tailored to your industry...

A new breakthrough we call the EasyStep interview makes this unprecedented guarantee possible.

It starts by asking you what industry you're in, so your books are automatically set up correctly from the outset. You can also print out a guide full of specific, helpful tips, written just for your industry.

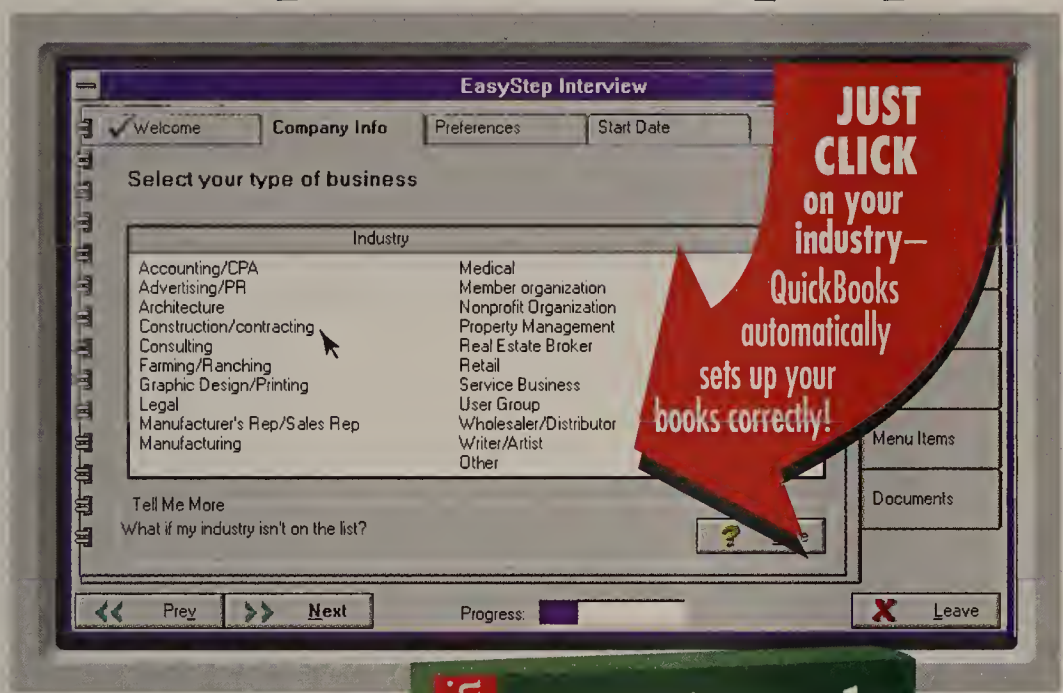
But your EasyStep interview goes much deeper than that.

...customized for the way you work.

Believe it or not, the EasyStep Interview actually learns the unique, individual ways you like things done in your business. And automatically sets up your books to follow your procedures. For example, do you:

- *use multiple credit cards?*
- *apply taxes to invoices?*
- *keep inventory?*
- *have a payroll?*
- *track time by project or job?*
- *create estimates?*
- *and much, much more.*

Based on your answers, QuickBooks turns on only the features you need. (As your business grows and changes, it's easy to add the others.)



New QuickBooks 4.0
Invoicing and accounts receivable.
Checkwriting and accounts payable.
Purchase orders and inventory.
Payroll and payroll tax forms.
Over 80 financial reports.
And much more!

New QuickBooks Pro™ 4.0
Integrates with the above:
Time tracking.
Estimating.
Job costing.

"If you're keeping the books for a small business, this is the package to get."
PC Computing, Feb.'96

"A winner by all accounts."
Windows Magazine, Feb.'96

Mac System Requirements: System 7.0 or higher, and 8MB of RAM. Recommended: 68030-25Mhz processor or faster, including IIfx, IIvx, IIci, Centris, LC III, LC 520 or higher, Performa 450 or higher, or any Quadra or Power Macintosh machine. Hard disk with 21MB free disk space. Supports 12 inch or larger B/W monitors, or 13 inch or larger color monitors with 640x400 resolution or better. Also supports PowerBook displays. ©1996 Intuit Inc. QuickBooks is a registered trademark, and QuickBooks Pro is a trademark of Intuit Inc.

Result: The first and only accounting software that feels as natural as if you'd designed it for yourself.

No start-up hassles.

QuickBooks EasyStep Interview eliminates your start-up hassles. Just answer the questions, and that's it! You're up and running right away.

The easy way to control your business.

QuickBooks eliminates your bookkeeping hassles and shows you exactly what's going on in any part of your business—instantly, any time.

Yet it's amazingly easy. You never have to enter anything twice—and you don't have to learn a thing about accounting. If you know how to fill out a check or an invoice, you'll have no trouble with the familiar screens in QuickBooks.

Try it, risk-free.

If you'd like to have more time for running your business and spend less time doing the books, don't put it off. Try QuickBooks (or QuickBooks Pro) now with this limited-time special offer.

Try QuickBooks or QuickBooks Pro for only $8.00!

Pay only $8 shipping and handling now to try either product. If you decide to keep using it after 30 days, pay just $119.95 for QuickBooks or just $189.95 for QuickBooks Pro.

1-800-781-6999 Ext. 702 441
to order 24 hours a day, 7 days a week.

Offer for first time users only. Credit card orders only. Add sales tax where applicable. International shipping extra. Offer expires 7/30/96. QuickBooks is also available for Windows and DOS. QuickBooks Pro is also available for Windows. Pricing and features vary.

in

here

mistakes

a r e

forgiven

© 1995 Microsoft Corporation. All rights reserved. For info. only: in the 50 United States and Canada (800)531-6748. Outside the U.S. and Canada, call your local Microsoft subsidiary or (206) 936 8661. For Microso
text telephone (TT/TDD) services call (800) 892-5234 in the U.S. or (905) 568-9641 in Canada. Microsoft is a registered trademark and *Where do you want to go today?* is a trademark of Microsoft Corp. Powe
Mac is a trademark of Apple Computer, Inc.

YOU HAVE A JOB TO DO

You are on
Your Power Mac.™
You are in
Microsoft® Word 6.0.1.
Your mind
Is racing.
Your fingers
Are racing
To keep up
With your thoughts.

YOU WRITE

You begin
A new sentence
With
A lowercase letter.
This mistake is corrected
Automatically.

YOU REVISE

Knowing there are
100 levels
Of Undo.
And 100 levels
Of Redo.
Just in case.

YOU WRITE

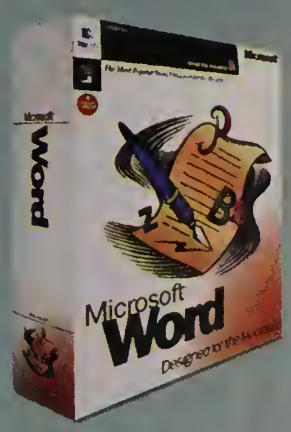
You begin a new
Sentence with
An abbreviation
You created.
It becomes
An entire phrase.
Automatically.

YOU REVISE

In
Print preview
You change
Margins
Typefaces
And words.

YOU WRITE

Until you have finished.
You click AutoFormat.
And the block of words
Can become
A letter.
A proposal.
A story.
Automatically.
You write. Because you can.



Microsoft®

WHERE DO YOU WANT TO GO TODAY?™

Finally, vector illustration and Fractal Design's unique **Natural-Media**® paint technology join forces in new Painter 4!® With Painter's dazzling new **Shapes**™ feature, full bitmap editing is now combined with Painter's powerful drawing tools. And Shapes objects also have fully-adjustable opacity and compositing capabilities. So you can import artwork from Adobe Illustrator,™ Macromedia Freehand™ or CorelDraw™ and give it transparency, texture and genuine Natural-Media flair. We call this phenomenon "PostScript™ With Pizzazz!" And with Painter 4 you can explore the world of **Tile Mosaics**, create **Image Maps** and seamless patterns for **Web Graphics** as well as turn photographs into paintings. Or combine painting and photography with the **Image Hose**.™ Then add to your Image Hose nozzles collection with the new **Garden Hose**.™ You can even use Painter's incredible **Net Painter** feature to collaborate with other artists or art directors over the Internet! Painter. **The World's Leading Paint Program** for Macintosh,® Power Macintosh,® Windows™ and Windows 95™ Native. Go for 4 today!

To Upgrade
Or For More Information, Call
800-297-COOL
Extension 1411, Department E1A

FRACTAL DESIGN CORPORATION

© Copyright 1996 Fractal Design Corporation. All rights reserved. Fractal Design Painter and Natural-Media are registered trademarks of Fractal Design Corporation. Image Hose and Shapes are trademarks of Fractal Design Corporation. All other trademarks are the property of their respective holders.

Painter

New Version 4!

PostScript™ With Pizzazz!

Letters

A Note on Copland

I RECENTLY PURCHASED A DAYSTAR PowerPro 601 upgrade for my Mac Centris 650. I am very pleased with its performance, but I was surprised and shocked to read in "Why Apple Can't Meet Demand" (January 1996) that Copland will not support PowerPC accelerator cards. When I called Apple, the technical representative I spoke with claimed to know nothing about this. Greg Erickson, the DayStar rep who answered my E-mail inquiry, responded promptly but didn't shed much light on the issue. His statement:

"The article did state that Copland will require controller chips found on Power Mac computers but not PowerPC upgrade cards. However, Copland will not be available for at least a year and feature sets and operating requirements are subject to change. Apple, too, has a lot of PowerPC upgrade cards in the field. It is certainly in their interest to broaden the list of supported Macs!"

I'm writing to ask if *Macworld* could publish more details on this important issue. There must be many users of PowerPC-upgraded Macs who don't want to be excluded from enjoying the benefits of Copland.

GARY SHACKELFORD
via the Internet

According to Apple's OS technologies department, Copland will not run on PowerPC-upgraded 680X0 Macs or 500-series PowerBooks, whether the upgrade cards were purchased from Apple or DayStar. Apple will introduce a 680X0 version of some Copland technologies, such as the interface, but that solution will not support true multitasking and multithreading, as Copland will.

Duo 200 owners who opt for the PowerPC upgrade will be able to take full advantage of Copland, since the PowerPC upgrade will replace the entire motherboard.—Ed.

Game Point

AS THE FLIGHT SIMULATORS I USE become more complicated, I find I need a reminder for which keys do what. So I designed a series of overlays in Adobe's PDF format for several games: A-10 Attack, A-10 Weapons Loadout Chart, Chuck Yeager's Air Combat, Dogfight City, Falcon, Flight Simulator 4, Hellcats and Leyte Gulf, and F/A-18 Hornet.

They're all available on my home page (*http://www.fairmont.wvnet.edu/www/webteam/bob/overlays/overlays.html*) and should print easily on just about any printer. PDF files require Acrobat Reader to view or print out, so I also have a link to Adobe's Web page.

BOB HEFFNER
via the Internet

IN HIS REVIEW OF DOMARK SOFTWARE'S Out of the Sun (January 1996), Mel Beckman waxed enthusiastic about the game's historical accuracy. I am wary of his enthusiasm, though, because according to the graphic accompanying the review, the people at Domark Software (and evidently Mel) don't know that the B-25 Mitchell was a product of North American Aviation, not Martin Aircraft. Martin Aircraft produced the B-26 Marauder, another twin-engine medium bomber of the era.

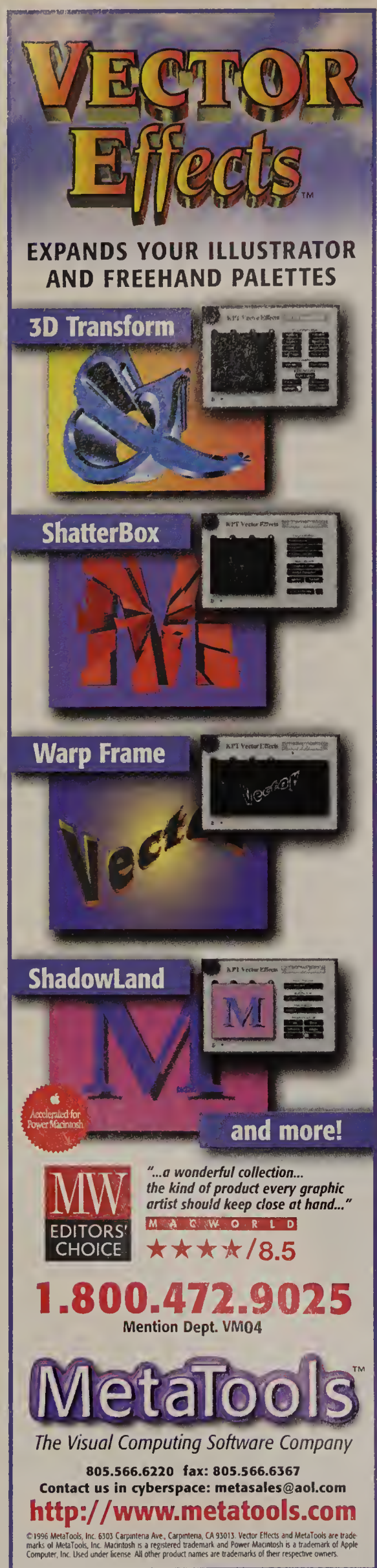
GARY K. MCCORMICK
San Jose, California

Ouch! We stand corrected.—Ed.

AS ALWAYS, I ENJOY YOUR MAGAZINE for all the information it provides, both fun and business-related. I am still only part way through the January issue, but I thought you might want to know about a game site you did not mention in "Game On" (*Macworld Online*, January 1996). Why pay $9.95 per month to Outland, fanatic backgammon players, when you can play for *free* via FIBS (First Internet Backgammon Server)? The interface is a little bare, and the screen constantly scrolls as players log in and out, start and finish games and matches, and so on, but I have found it addicting enough to make do. For those of us who are not into supergraphic, joystick-slammin' action stuff, it is a blast. I have played against folks in Germany, Italy, and Greece, as well as throughout the United States. If only I could find some interested flesh-and-blood types to start a local club, maybe I could get off FIBS and get back to work!

ADAM TYSON
via the Internet

continues



Circle 4 on reader service card

CORRECTIONS

- *The Performa 6300 does not come with a second serial port or an MPEG video-playback card as stated in January's* New Products*—Apple's plans changed after our issue went to press.*
- *The correct phone number for Creative Solutions is 410/766-4080 ("New Products,"* News, *February 1996).*
- *The correct price for Meadow Information Systems' AutoPrice is $1895 ("New Products,"* News, *February 1996).*

Searching for backgammon *on the World Wide Web reveals a number of tasty-looking sites. Or you fanatical backgammon players can just Telnet directly to FIBS at* fraggel65.mdstud.chalmers.sc:4321 *and log in as a guest, then type* **help** *for an introduction to FIBS. If the command-line interface distresses you too much, download Paul Ferguson's MacFIBS 2.0.3 graphical front end from* ftp://ftp.best.com/pub/fergy.*—Ed.*

QuickTake Retake

IN YOUR DIGITAL CAMERAS REVIEW (January 1996), Deke McClelland says, "You should avoid quarter-screen photos—one image contains 77,000 pixels, less than half the number used to print the yellow *F* at the beginning of this article." That may be true if the *F* Deke was referring to was printed on a 600-dpi printer. At screen resolution, it would have taken up, at most, 1024 pixels—the same size as an icon (32 by 32 pixels). And a 320 by 240 "quarter-screen" image is a lot bigger, at screen resolution, than an icon.

SIMON RINGSMUTH
via the Internet

That yellow F, *as printed in the magazine, measured 15 points tall by 12 wide, and was printed at 2400 dpi. As a result, it contained around 200,000 pixels, more than 250 percent as many as a quarter-screen image. Quarter-screen images are far too small for printing purposes; even if you don't notice the graininess, jagged edges, and soft focus that comes with low resolution, you can rest assured some of your readers will. Quarter-screen digital-camera pictures are also ill-suited to screen display, since the compression is more obvious on screen than it is in print. If you shoot your pictures at maximum resolution and resample them down by 50 percent, the compression becomes almost invisible.—Ed.*

Why I Love Apple

WITH THE HIGH-PRESSURE TV COMmercials and magazine blitzes currently going on between Macintosh and Microsoft's Windows 95, I found this simple diagram on ease of use to be the Last Word! I recently received my free copy of The Merchant: Hassle-free Shopping on CD-ROM. When I opened the packaging, I found the following instructions quite humorous.

How do I get started?

For Windows Users:

1. From the Program Manager, choose Run from the file menu. 2. In the Command Line box, type **D:\INSTALL** (where D is the letter assigned to your CD-ROM drive), and click OK. To run The Merchant, double-click The Merchant icon. Start shopping!

For Windows 95 Users:

Windows should start The Merchant automatically. The first time it is run, click on Install The Merchant. If Windows does not start the program automatically:

1. Choose Run from the Start menu. 2. In the Open box, type **D:\INSTALL** (where D is the letter assigned to your CD-ROM drive), and click OK. Then, to run The Merchant, select Start The Merchant when the CD-ROM is first inserted, or from the Start menu select Programs>Merchant For Men>The Merchant. Start shopping!

For Mac Users:

Double-click The Merchant icon. Start shopping!

LYNN CHAMBERS
Brewton, Alabama

Kiosk Hall of Shame

THE DAY I GOT THE JANUARY 1996 ISSUE of *Macworld*, I had just returned from the Rock and Roll Hall of Fame and Museum. The first display of kiosks I encountered, to the left on the ground floor, were sluggish and temperamental; the five on the right simply gave up and shut down a few minutes after we got there. The server would flash error messages, which the software would cover up, and then the application would quit. To

continues

MAKE YOUR OWN CDs!

#1 Selling Recordable CD system

Low-cost Recordable CD media - $15 (100 year shelf life)

New 4X read, 2X write performance

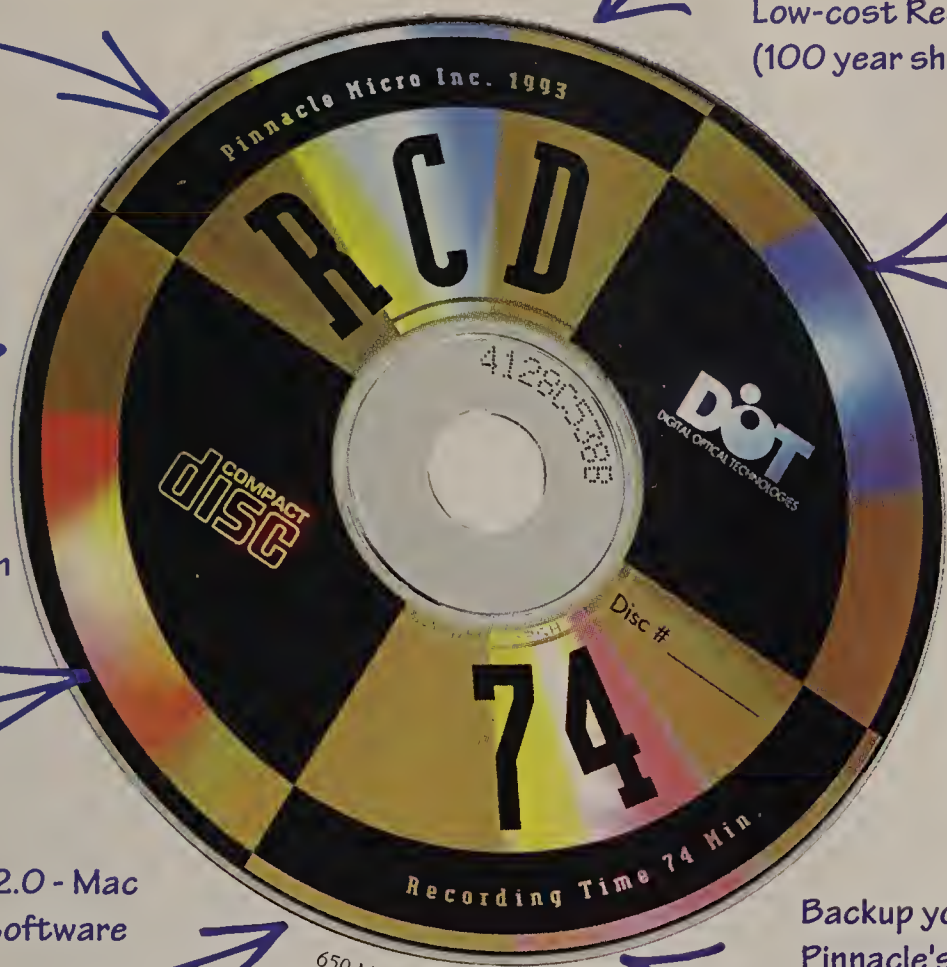
Archive all kinds of information: databases, company records, photos, charts, etc.

Make & distribute your own audio, video, or data CDs

Mix & master your own custom audio CDs. Digidesign™ approved

New CD Burner 2.0 - Mac CD-R Creation software

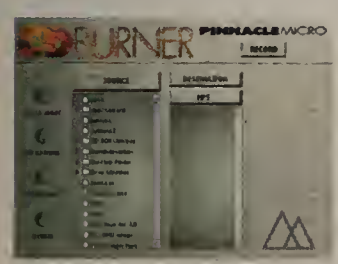
Backup your data with Pinnacle's RCD backup utility



650 MB/74 min. Recordable disc

Recordable CD System Only $1295

Pinnacle's new RCD 5040™ is a 2X CD Recorder and 4X CD-ROM player for only $1295. As a Recorder, it can create custom data, audio or video CDs up to 650 MB. As a Player it can read thousands of educational, multimedia and music CD-ROMs. Pinnacle's new **CD Burner 2.0** Mac creation software offers the best graphical user interface and the most comprehensive support for the Mac environment. And with Pinnacle's RCD backup utility, CDs can easily replace magnetic tape for better reliability and fast random access to your data. Each CD is only $15 per disc or 3 cents per megabyte!



Pinnacle CD Burner Mac Creation Software

The RCD 5040 is the easiest way to create your own CD of multimedia titles, interactive games, or even master your own audio CD of your favorite tunes. You can backup accounting records, business plans, charts, graphs or confidential information on CDs for decades - safe and secure.

New RCD 5040 external MAC/PC

VALUE-PACKED COMPLETE SYSTEM

- Pinnacle 2X CD Recorder/4X Player
- Pinnacle RCD Creation Software
- Pinnacle RCD Backup Utility
- Digidesign™ MasterList CD Approved
- Extreme Software's UP!™ - 100 Digital Video Startup Clips
- 2 Pieces of Recordable CD Media
- Full One-year Limited Warranty

The RCD 5040 system is simply the best way to store, archive, distribute and create information. Best of all, it's now affordable - it's recordable. To order or for a local dealer call: **800.553.7070**

Call to receive your free Guide To Compact Disc Recordable (CD-R)

PINNACLE MICRO
THE OPTICAL STORAGE COMPANY

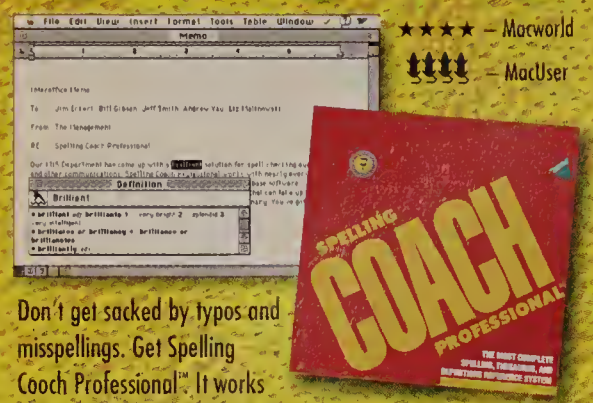
Tel: 714-789-3000 Fax: 714-789-3150

http://www.pinnaclemicro.com

All Trademarks and Registered Trademarks of Their Respective Owners.

Circle 115 on reader service card

Coach Pro Calls Great Spelling Plays



★★★★ – Macworld
★★★★ – MacUser

Don't get sacked by typos and misspellings. Get Spelling Coach Professional™. It works interactively and in batch mode with your favorite e-mail editors, word processors and all leading software programs to signal fumbles in spelling, punctuation and capitalization. Coach calls in corrections from Merriam-Webster's dictionary of over 95,000 words and 93,000 legal, medical and technical terms. Instantly look up definitions for over 85,000 words or consult its BigThesaurus™ of 1.4 million combinations of synonyms, antonyms, compared, contrasted and related terms.

Put Spelling Coach Professional on your team for just $49.95!

DENEBA SOFTWARE
(305) 596-5644
http://www.deneba.com/

PC&Mac Connection
800-998-0014
SKU #1768

Masterful Artworks Hailed by Critics!

★★★★½ – MacUser

"artWORKS is the best value you can find in an entry-level graphics program" – Mac User

Acclaimed by reviewers and users alike, Deneba artWORKS™ puts crisp object-drawing and vivid 24-bit painting and image editing tools in one handy place. In short, everything you need to touch up family photos, create dazzling newsletter mastheads, school reports, business graphics and more. It's the perfect companion for any color ink jet printer. Use the artWORKS 8,000 Clip Art Image Collection and 500 Fonts to get started on your next work of art – included FREE on CD-ROM.

And for just $49.95, this masterpiece won't break your bank.

DENEBA SOFTWARE
(305) 596-5644
http://www.deneba.com/

PC&Mac Connection
800-998-0014
SKU# 11055

make things worse, I got a brief glimpse of Apple's At Ease running underneath. The frame rates were impressive, as you said ("Finally, Rock Computes," *Networks* news, January 1996), but the kiosks themselves broke down far too often.

But it gets worse. After taking two or three hours to browse the museum, I was really looking forward to seeing the Hall of Fame itself on the darkened sixth floor. I climbed the spiral staircase and entered the blackness to face the monochrome, LCD screen of a PC, with "Please wait, ROM BIOS is booting up" on the screen.

The singing rocks in front of the museum captured my attention longer than either of these two attempts at multimedia.

THOMAS MICHAEL BROOKS
via the Internet

The Quadra 630 Question

I AM LOOKING FOR A DOS CARD FOR MY Quadra 630. I checked with Reply and they said Apple provides this solution. I called Apple and was told to check with Reply. What's the deal? Do you know who is making the DOS card? I'd appreciate any information about who is making a DOS card and if it can be purchased.

JACKIE MCCARTNEY
via the Internet

You've been led on a wild goose chase, I'm afraid. Neither Apple nor Reply—nor any other third-party vendor for that matter—makes a DOS card for the Quadra 630 because of its LC III–style PDS slot. Owners of a Performa/LC 470–series, 550–series, or 570–series Mac are in the same predicament. Your only option is a software solution like Insignia Solutions' SoftWindows 1.0 (2.0 won't run on 680X0 Macs) or Farallon Computing's Timbuktu.—Ed.

AFTER READING *NEW PRODUCTS* (JANUary 1996), I called Apple to get a release date on the Quadra 630–to–Performa 6300 upgrade. The guy I spoke to at Apple said it didn't exist and eluded my attempts to get information on this or any future upgrades. But he did slam *Macworld* for printing the announcement. What's up with these guys? Do you know the truth about this on-again, off-again upgrade?

BOB OLSON
via the Internet

Sometimes customer service is the last to know. The motherboard upgrade to take a Performa/Quadra 630, 5200, and 6200 to a 100MHz PowerPC Performa 6300 was expected to begin shipping in January.—Ed.

Join One, Join All

REGARDING YOUR *CONSPICUOUS Consumer* column in the January 1996 issue, I disagree that users are better off joining a local user group instead of one of the national giants—BMUG and BCS•Mac in particular.

While it's true that the local groups offer more to people in their immediate geographical areas, national ones still offer *all* users information opportunities beyond those any local group could hope to offer. BMUG's excellent BBS is on the Internet; through using it, I've been able to avoid ever calling for commercial technical help. Its help lines are available by phone. It maintains an enormous shareware library, creates its own CD-ROMS, and sells both its own and other computer books at a discount. Finally, its formidable newsletter is a powerful influence on the computer industry.

It's not either/or; both large and local user groups have something to offer anyone.

BETSY RAMBERG
via the Internet

CAPrice

IN RESPONSE TO THE LETTER ADMONishing Guy Kawasaki for his criticism of those who type E-mail in all caps (*Letters*, January 1996), I offer the following:

dearsir:iamsorrythatyoudisagreewith guykawasaki'sremarksaboutfolkswhotype inallcaps.however,yourexcuseofsaving yourselffromcarpaltunnelsyndromeis ludicrous.isavedawholelotofkeystrokesin thismessage,butitsureishardtoread!

CHARLES REEVES, JR.
via the Internet

Letters should be sent to *Letters, Macworld*, 501 Second St., San Francisco, CA 94107; via fax, 415/442-0766; or electronically to CompuServe (*70370,702*), MCI Mail (*294-8078*), America Online (keyword *Macworld*), AppleLink (*Macworld1*), or via the Internet (*letters@macworld.com*). Include return address and daytime phone number. Due to the high volume of mail received, we can't respond personally to each letter. We reserve the right to edit all letters. All published letters become the property of *Macworld*. m

FOR A DESIGNER OR ILLUSTRATOR THE ONLY TOOL MORE IMPORTANT THAN CANVAS™ 5 IS THE COFFEE MACHINE.

THE BEST OF

ILLUSTRATOR™

FREEHAND™

QUARKXPRESS™

& PHOTOSHOP™

Mac OS

SAVE TIME. SAVE A LITTLE MONEY, TOO.
Canvas 5 will cost $599. But if you buy Canvas 3.5 right now, you can get acquainted with the program and get a free upgrade to Canvas 5 when it comes out later this winter. Want more info? Call **800-6-CANVAS EXT 2**

We who put words and images on paper for a living have lots of reasons to be profoundly thankful for the new Canvas 5. Not only does Canvas 5 include all the features that have long made it the program of choice for technical illustrators, it now combines the major functions of Illustrator, FreeHand, QuarkXPress and Photoshop. An awesome array of tools for illustration and page design. Typography and publishing. Photo design and image editing. Wrapped around a radically simplified, intuitive interface.

It's quick. It's easy. It's complete.

Now, for the first time you can stay with a single program from concept to comp to illustration all the way through to color separations and pre-press.

Canvas 5 has the potential to turn our 16 hour work days into 12 hour days (while making our stuff look better). Excellent. Now maybe we can have a life.*

TECH SPECS: • All the standard illustration tools • precision to 0.5 micron • calligraphic pens • path-editing shortcuts include punch, mix & transparency • on-screen rotation & skewing in 0.01° increments • direct selection & editing within groups • automatic object re-blending • centralized ink controls apply

FOR DESIGNERS

colors, gradients, hatches, raster & vector textures to strokes, fills & text • warp objects with 20 pre-defined templates • create standard color tints (10%, 20%, etc.) and custom colorizing tints from any base color • multi-color

ILLUSTRATORS

linear, radial & directional gradients • transform 2D objects into 3D with light source control • calibrated CMYK colors • digital "swatch" book • gamut warning indicator • line joins & end caps • zoom from 3% to 3200% in

ART DIRECTORS

0.01% increments • drag-and-drop between documents • use vector-based objects (including text) as arrowheads • interruptible screen redraws • autotrace scanned images • 38.5' by 38.5' pasteboard • unlimited undo &

IMAGE EDITORS

redo • font sizes from 2 to 720 points in 0.1-point increments • kerning & tracking • drop caps • paragraph-level formatting • indents, margins & column guides • text wraps • column-to-column text flows • left, right,

AND DTP-ERS.

center, decimal & comma tabs • letter & word spacing, hyphenation, last line, ragged width, widow & orphan controls • convert Type-1 & TrueType™ fonts to outlines • automatic font mapping • 100,000-word spell checker • floating toolbox controls • TruMatch™ & PANTONE® Spot or Process colors • color separate any graphic element, including CMYK TIFFs • specify, separate & print spot, process or color tints • color calibration • UCR & GCR • object-level overprinting • moiré elimination • transition effects between presentation slides • floating layers palette • edit bitmap, grayscale, duotone, indexed color, RGB & CMYK TIFF images • 24 alpha channels • feathered-edge selections • quick masks • magic wand • multiple rectangular & elliptical lassos • soft-edged brushes • pressure-sensitive tablet support • clone & rubber stamp • dodge & burn • selectively saturate & desaturate color • smudge, sharpen & blur • color balance, hue, saturation, brightness, contrast & gamma controls • image sharpening, softening, stylizing, distortion & noise filters • live previews • compatible with all Photoshop plug-in filters • TWAIN scanner support • device-independent CIE LAB color space • 2,000 typefaces (both TrueType™ & Type-1) & 20,000 color clipart images on CD-ROM • extensive I/O support including: Adobe™ Illustrator 5.5, Adobe Photoshop 3, EPSF, XPress DCS, TIFF (RGB & CMYK), Kodak Photo CD, MacDraw® Pro, PICT, TARGA, JPEG, IGES, CGM, DXF ™, QuickTime™, HPGL, CorelDRAW™ 5, Designer 4, Windows Bitmap & Metafile, WPG, Plain Text, Microsoft™ Word, Rich Text (RTF) & MacWrite® Pro and more.

DENEBA SOFTWARE

CANVAS 5
IT'S WHAT THEY'LL THINK OF NEXT

*Naaahh. © 1995 Deneba Software, 7400 S.W. 87th Avenue, Miami, FL 33173. Phone: (305) 596-5644. Fax: (305) 273-9069. Canvas is a trademark of Deneba Systems, Inc. Illustrator and Photoshop are trademarks of Adobe Systems, Inc. FreeHand is a trademark of Macromedia, Inc. QuarkXPress is a trademark of Quark, Inc. All other trademarks and registered trademarks are the property of their respective holders.

Circle 57 on reader service card

If

you could print

what you can

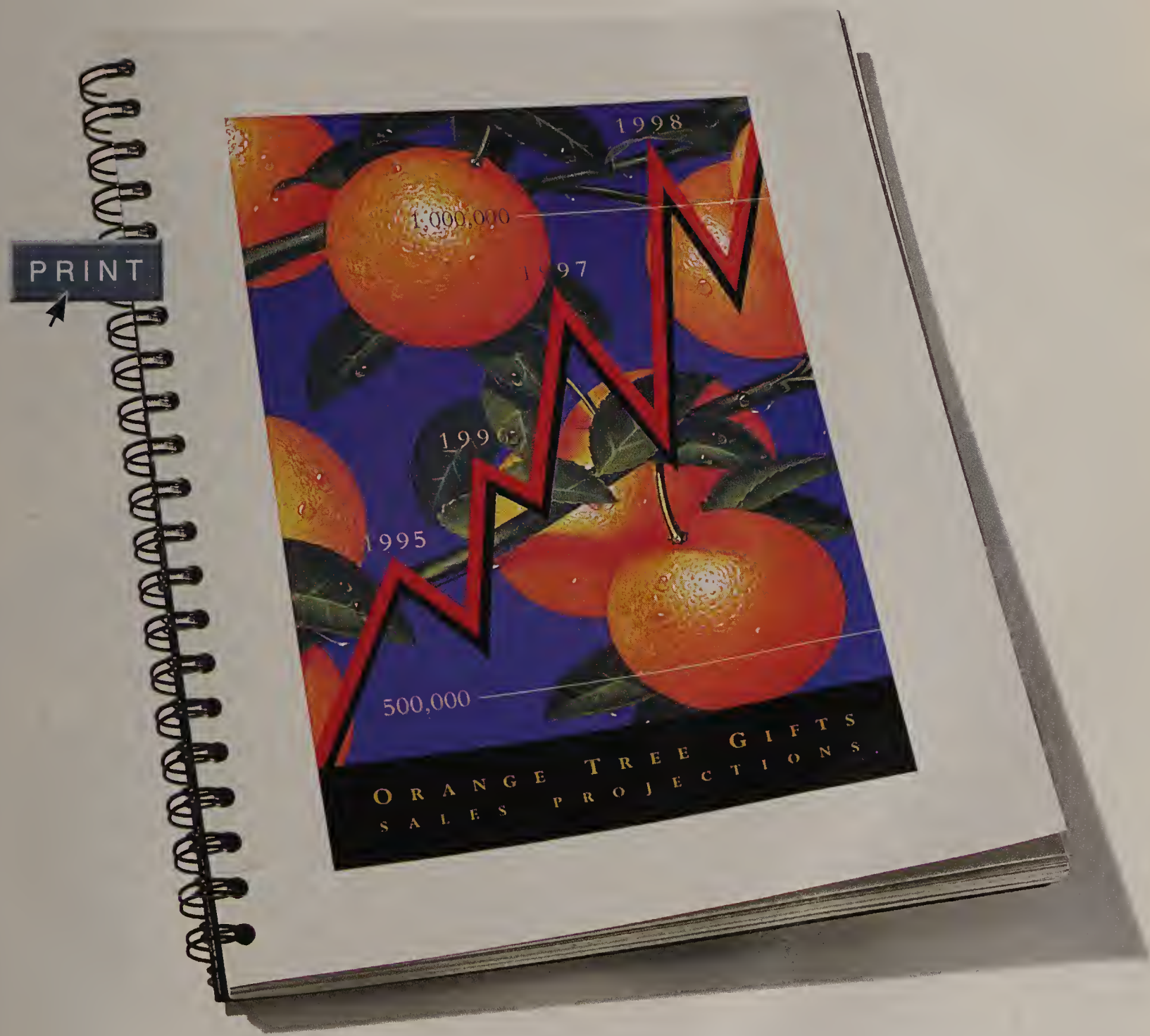
imagine

can you

imagine

what you could print?

EPSON COLOR INK JET PRINTERS. *Imagine being able to coax that rainbow chasing child called your imagination out of your brain and onto a document in living, breathing, 720 x 720 dpi, Photo Quality ink jet color. Imagine being able to do it for as little as $449. Imagine the kind of color that will make people stop what they're doing and look at what you just did. Imagine EPSON Stylus Color. Now stop imagining and call 1-800-BUY-EPSON x3100, or see http://www.epson.com. And give your imagination something to play with.*



The ingredients of a really cool document: any one of the Epson Stylus printers (for as little as $449), 720 x 720 dpi mode of Photo Quality color, a dash of imagination, and one teaspoon of awe. (Cleanup is a breeze.)

YOU'VE GOT TO SEE IT IN EPSON COLOR.™

1996 Macworld WORLD CLASS AWARD WINNER

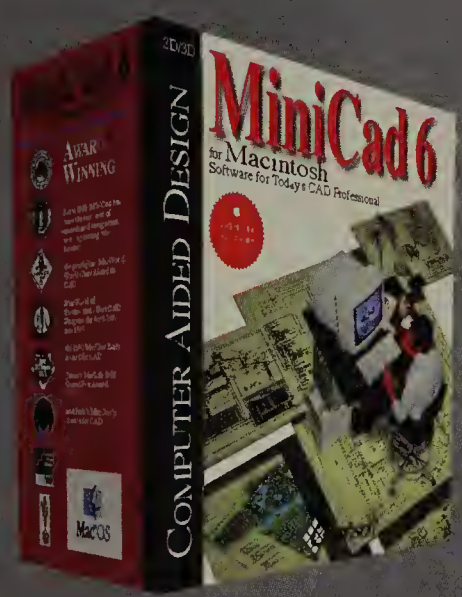
SHOULD MINICAD 6 BE YOUR CAD SOLUTION?

- A proven market leader that handles any job; 2D, 3D, cost estimation and presentation
- A program tailored to your needs. Specialized tools for many design industries: AEC, mechanical engineering, landscape, space planning, food service, theater/lighting design. Have you checked lately?
- A program that's easy to use, easy to buy and easy to customize to your specifications
- A cross platform program for both Macintosh and Windows systems
- A program from a stable company that stands behind its products with aggressive R&D
- A program with a RISK-FREE way to try it before you commit

MiniCad 6® ...

THE FULL-FEATURED CAD PROGRAM

with INTEGRATED PROFESSIONAL SOLUTIONS



Diehl Graphsoft, Inc.

Graphsoft®

A NASDAQ TRADED COMPANY

Makers of MiniCad 6, Blueprint and Azimuth for Macintosh. MiniCad 6 for Windows coming soon!

MACINTOSH WINDOWS

MINICAD 6: A COMPLETE CAD PACKAGE!

MiniCad 6 has just what you're looking for: a complete 2D/3D drafting environment, powerful database and built-in macro language. A QuickTime™ 3D animation tool and QuickDraw™ 3D file support to add sizzle to your presentations. Even digital terrain modeling! All highly organized and very easy to use!

MONEY BACK GUARANTEE 30 DAY AT PARTICIPATING DEALERS

FREE DESIGN AND DRAFTING TOOLKIT™

Packed with thousands of symbols, tools, commands, templates, parametrics, formatted reports, worksheets and sample files targeted at specific industries. No extra symbol libraries to buy! These specialized feature sets are powerful, complete and already in MiniCad 6, giving you both design flexibility and targeted industry solutions.

INTERNATIONALLY RECOGNIZED

Now in its 10th year, Graphsoft's MiniCad is the best-selling CAD program for the Macintosh, utilized by design professionals in over 80 countries and 12 languages.

TRY IT RISK-FREE FOR 30 DAYS!

When you buy MiniCad 6 from a participating dealer, you'll get Graphsoft's no-hassle 30 day money back guarantee. You'll also get 18 months of free technical support, a 24 page quarterly newsletter and multi-media CD that provides both Quicktime movies on the operation of each tool and command, and real working sample files from around the world.

For more information please contact Graphsoft at 10270 Old Columbia Road, Columbia MD 21046 1-800-413-0936 or 410-290-5114 Fax: 410-290-8050, Marketing/ Sales: www.graphsoft.com In Canada call Paxar at 1-800-260-0905 For Academic pricing call 1-800-531-3227

QuickTime, QuickDraw and Macintosh are trademarks of Apple Computer. Windows is a trademark of Microsoft. MiniCad and Design and Drafting Toolkit are trademarks of Diehl Graphsoft, Inc.

Circle 46 on reader service card

by Adrian Mello

Apple Leadership: Chain of Fools

APPLE'S INEPT CHIEFS ARE DISCONNECTED FROM REALITY

PUT AWAY THE BLACK veils. Forget the operatic media pundits predicting Apple's imminent implosion. Apple is a strong business with tremendous assets, and the Mac isn't going to die anytime soon, if ever. Beyond the hype, though, the company must make fundamental changes in the way it does business. Because Apple has not been successful in solving its problems, I've developed an action plan for a new board of directors, a would-be buyer, or even the current leadership.

Apple's real problems have little to do with products or balance sheets; Apple's real problems stem from the epic levels of incompetence and indecision displayed by a core of inept leadership and bloated layers of self-serving managers. The Mac is an unbelievably great computer. Apple is an unbelievably rugged company. Apple's leadership is just plain unbelievable.

Let me make this very clear: Apple must *act*. Empty press releases, feel-good advertisements like those it ran in the *New York Times*, and speeches that repackage old dogma don't solve anything. Such transparent moves are particularly damaging now that Apple's management has once again proven itself so willing to dodge, rather than solve, crucial issues.

Make Up Your Mind

Apple's biggest problem is that it is spread too thin. Years of greed have saddled the company with the dual burden of driving the Mac Operating System forward *and* selling enough computers to maintain the Mac's market share. There's a joke that illustrates Apple's unrealistic ambitions: What company does Apple think it's most like—Microsoft, IBM, or Novell? Answer: All of the above.

Apple must decide what its fundamental business is. The sheer breadth of Apple's endeavors prevents it from focusing its efforts. Apple must develop leadership and discipline: it must both play hard in businesses where it can make money, and learn how and when to stay the course with developing technologies.

Further, by insisting on having all the markets all to itself, Apple has steadily alienated potential strategic partners. Rather than acting like a selfish child, clutching its toys to its breast, Apple must learn to work and play with others.

Apple should maintain a portfolio of businesses, but each discrete unit should be organized and scaled in a way that makes sense. Within Apple, Claris is a good example of this. Claris is treated as a truly separate division; it remains focused on being a successful software company and is doing quite well. Apple should cut loose projects and divisions that aren't central to the company's core vision, and work toward organizing other key parts of its business—computers, imaging hardware, Newton, and eventually, system software—as separate divisions. The result will be a set of linked enterprises that are better motivated, more effective, more decisive, and more accountable for their decisions.

Build Premium Products

Apple should focus on selling better-outfitted, better-quality Macs and leave low-cost, low-profit Macs to manufacturers set up to fight price wars. When Apple tries to compete solely on price, its margins aren't high enough to cover its research and development costs and remain profitable. However, Apple has shown time and time again that it can make better, more interesting products than other computer makers, and sell those products at a premium.

But Apple cannot just hike up the prices and ignore offering competitive values as it did several years ago. Neither should it abandon the home and education markets. Doing so would only damage the Mac's presence in these markets, which is not in Apple's long-term interests.

Of course, Apple's focusing on premium computers requires that there be a strong clone presence to maintain the Mac market's critical mass. Which leads to . . .

Let Clones Happen

Apple absolutely, without fail, must become serious about licensing the Mac OS. Not licensing the Mac OS early enough is the company's worst strategic mistake of all time, and its continued failure to license broadly only perpetuates this bad situation. Since announcing licensing plans in late 1994, Apple has effectively turned away every major computer company that has shown interest.

Apple's current halfhearted licensing measures are nearly worthless. It will take a number of large-scale computer manufacturers to establish broad support for the Mac platform and grow its market share, and it's unlikely that major com-

continues

puter companies will license the Mac OS if they can only make low-cost Macs. They will want to compete with full product lines, enabling them to make better margins on their own premium computers. Apple must show that it is willing to enter into this kind of an agreement with a large-scale manufacturing company.

Leverage Your Assets

Apple's best competitive asset is software expertise, but its revenues are almost completely dependent on hardware sales. In the long run, Apple needs to make a larger percentage of its revenues off its software business.

As soon as possible, the system software group must be organized as a standalone division whose revenue depends solely on licensing the Mac OS. This move will result in several quarters of red ink. But it will make the system software group accountable to the market rather than to other Apple divisions. Eventually, a strong licensing business will help Apple pay for the continuing development of the Mac OS.

Make Them Understand

In addition to managing its business more pragmatically, Apple must manage public perception more effectively. As much as recent events point to significant problems, it's absurd to think that they mean Apple is going out of business.

Apple is selling record numbers of computers—over a million Power Macs in the last three months of 1995. The Mac is extremely successful and has tremendous customer loyalty in a number of key markets, and Apple has one of the best-recognized brands in the world and virtually no debt. These aren't signs of a company going down the tubes. But the constant funeral preparations by critics are a sign that Apple is doing a poor job managing the public's understanding of the company's state of affairs. The danger is that the constant doomsaying could become a self-fulfilling prophecy. Potential customers hearing only about Apple's troubles may be chased away.

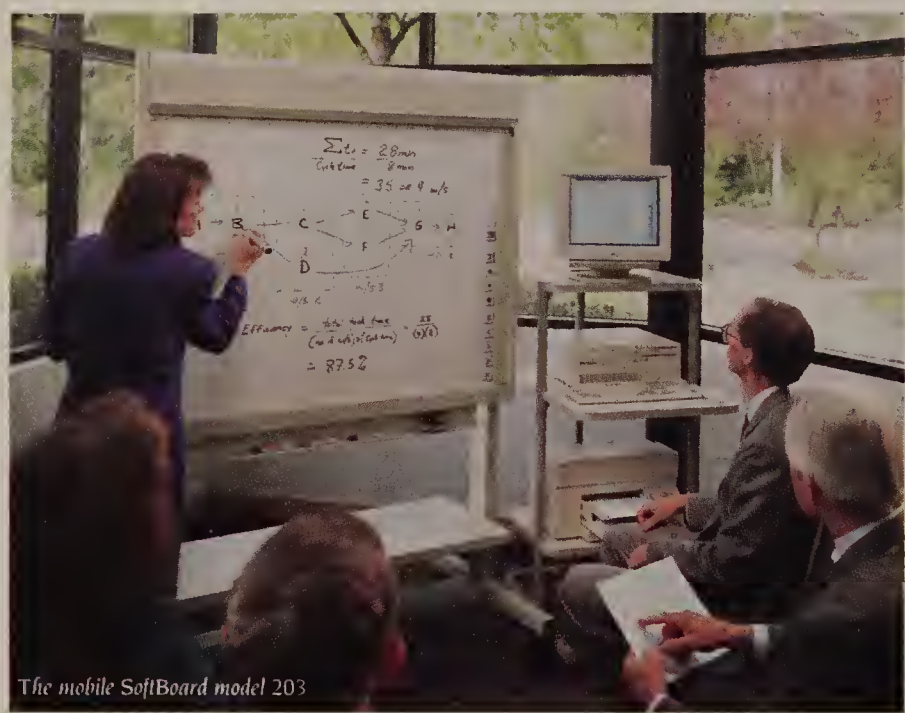
Once Apple defines a clear and sensible strategy, the company really needs someone at the executive level who can help customers, investors, business partners, and employees understand how Apple management will restore order and move forward.

Don't Talk. Act.

The success of the plan I've outlined depends on one more essential element: if Apple's current board and management are to remain at all (and this is a dubious choice at best), they must stop believing their own hype.

These spin doctors have failed miserably in convincing the outside world of the company's health, but they have succeeded horrifically in convincing themselves that their occasional successes have been the results of sound planning and good management, rather than the fruit of rare and unpredictable flashes of competence.

Miracles don't last forever. Apple must outline a plan for a real licensing effort and restructuring its business. It must communicate that plan quickly and clearly. And then Apple must prove that it has the courage of its convictions by eschewing its classic cosmetic restructuring programs in favor of real change. m


The mobile SoftBoard model 203

Imagine the meeting where you all have the same vision, the same objectives, and the same notes.

SoftBoard®
MICROFIELD

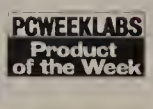
SoftBoard only *looks and feels* like an ordinary whiteboard. Whatever you create on a SoftBoard® appears instantly on your Macintosh® or Windows®-based PC. Once it's there, you can save it, print it, cut and paste it, e-mail it, fax it, even network it to multiple sites. From personal to conference room sizes, wall or cubicle mount, table top, or mobile, there's a SoftBoard to fit your needs.

For our brochure and information on all our SoftBoard models call today. **1-800-334-4922**

MICROFIELD
Microfield Graphics, Inc.
9825 SW Sunshine Court
Beaverton, OR 97005
503-626-9393, Fax 503-641-9333
e-mail: sb_info@mfg.com

©1995 Microfield Graphics, Inc. All rights reserved. SoftBoard and Microfield Graphics are registered trademarks and the SoftBoard and Microfield logos are trademarks of Microfield Graphics, Inc. All other trademarks and registered trademarks are the property of their respective owners. All specifications are subject to change without notice.

FINALIST



Circle 48 on reader service card

Kai's Power Tools 3

UNLOCKS YOUR BRAIN

Spheroid Designer

Page Curl

Planar Tile

Visual Presets

Interform

Vortex Tile

Real Time Imaging Juice!

New Kai's Power Tools 3 takes Photoshop, Painter and your creativity to a completely new level. What sets Kai's Power Tools 3 apart is its ability to solve creative bottlenecks. On a Power Mac, you'll see awesome imaging effects take shape in real time, with Kai's new marvels like KPT Lens *f/x*™, KPT Spheroid Designer™ and KPT Interform™. There's no better way to maximize your investment in Photoshop and other plug-in compatible programs.

- The choice of world-class digital artists for Web pages, network TV, broadcast award shows, magazine covers, CD-ROM design, annual reports and more.
- Now includes more than 200 new features and improvements.
- New graphic presets, huge real-time previews and advanced interfaces for superior imaging.
- New sphere and texture generators featuring 3D raytracing, animation, negative lighting, genetic blending, infinite zooming and panning through textures and more.
- 36 levels of undo.

Find out more! Call us today.

1.800.472.9025

Mention Dept. KM04

MetaTools™

The Visual Computing Software Company

805.566.6220 fax: 805.566.6367
Contact us in cyberspace:
metasales@aol.com

http://www.metatools.com

© 1996 MetaTools, Inc. 6303 Carpinteria Ave., Carpinteria, CA 93013. Kai's Power Tools is a registered trademark and KPT Interform, KPT Lens *f/x*, KPT Spheroid Designer and MetaTools are trademarks of MetaTools, Inc. Macintosh is a registered trademark and Power Macintosh is a trademark of Apple Computer, Inc. Used under license. All other product names are trademarks of their respective owners. Brain image by Impact Images.

PERFORMS UNDER WINDOWS 95

Accelerated for Power Macintosh

★★★★ Publish

MacUser UNITED KINGDOM

MacWEEK

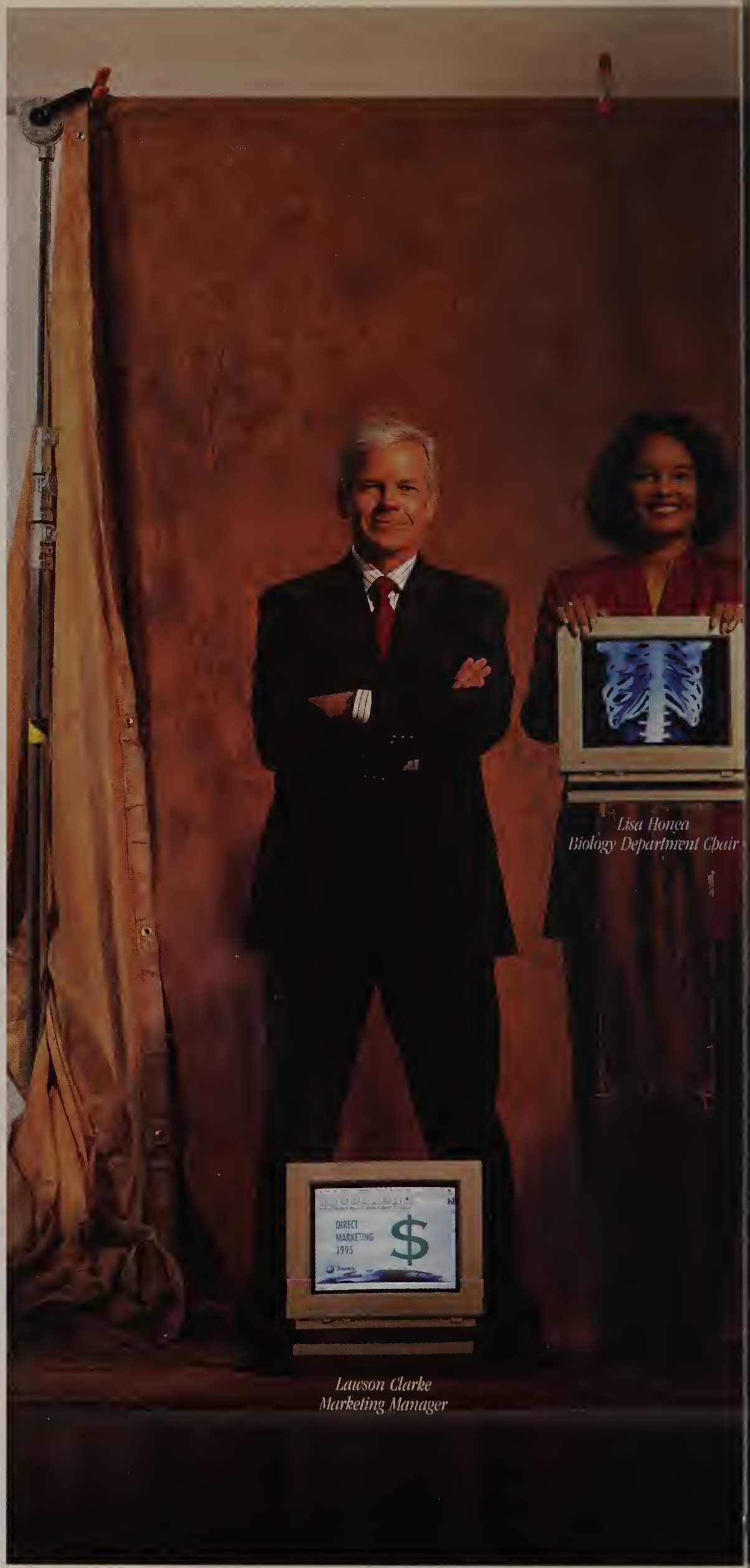
MacUser RATED 4½

MACWORLD ★★★★/8.3

MACWORLD SWEDEN

Circle 5 on reader service card

Looking for a compelling reason to set up an Internet Web site? How about the fact that you don't have to be a propellerhead anymore in order to actually do it?



Lisa Honea
Biology Department Chair

Lawson Clarke
Marketing Manager

©1995 Apple Computer, Inc. All rights reserved. Apple, the Apple logo and "The power to be your best" are registered trademarks of Apple Computer, Inc. PowerPC is a trademark of International Business
trademark of Novell, Incorporated, in the United States and other countries, licensed exclusively through X/Open Company, Ltd. All Apple products are designed to be accessible to individuals with disability. To learn

Introducing the Apple Internet Server Solution.

It's called the World Wide Web (WWW). But that doesn't mean you have to get tangled up in it. Not with an Apple® Internet Server working for you. It represents the easiest, most affordable way for people to make their information widely accessible on the Internet. So virtually anybody can now create a WWW site—whether you work in education, publishing, a small business or a *Fortune 500*® company. It comes with all the software you need. Install it with a simple click of the mouse. You're up and running in minutes at less than half the cost (not to mention the headaches) of a typical UNIX®-based server. The sample Home Pages can even be customized. So you can build an interactive site full of hyper-linked text, graphics, video and sound. It also comes bundled with Adobe™ Acrobat Pro, allowing you to easily convert any PostScript™ file into a WWW-ready page. There are three Apple Internet Servers to choose from, all PowerPC™-based. Which means you can be sure you'll have the power necessary to respond to heavy WWW traffic. The power anybody can use.

The power to be your best.® Apple®

*Call **800-538-9696, ext. 830**, and we'll send you a complete Apple Internet Server information kit. Or visit our WWW site at http://abs.apple.com.*

Macintosh Corporation used under license therefrom. Adobe and PostScript are trademarks of Adobe Systems Incorporated or its subsidiaries and may be registered in certain jurisdictions. UNIX is a registered
more (U.S. only) call 800-776-2333 or TDD 800-833-6223

The new face of scanning

Brilliant scans. Negative or positive. Under a minute. Under $2,000.

SprintScan 35 lets you perfect the image yourself, right on your desktop. Just drop in the slide or negative strip, point and click. 30 seconds later you have an image that's as good as your original. • Ideal for 4-color separation output as well as F.P.O. work, the SprintScan 35 captures 10 bits of color (RGB) at a dynamic range up to 3.D. • To get the whole colorful story, call 1-800-816-2611, ext. 965, today.

Scanned at 2700 dpi in 30 seconds Photo by Phillip Porcella

Polaroid
Electronic Imaging Systems

Circle 295 on reader service card

The Desktop Critic

by David Pogue

You, Too, Can Become a Millionaire Overnight

EIGHT BEST-SELLING MAC PRODUCTS THAT DON'T EXIST—YET

IN 1985, RAYMOND LAU, A NEW York teenager, wrote an obscure shareware file-compression program. Its name was StuffIt; now he's rich. In 1990, Lloyd Chambers wrote a little program known as DiskDoubler; today, he's driving a BMW. A programmer I know wrote a couple of shareware programs; now he makes $28,000 a year in shareware payments alone.

Such stories prove that the American success fable can happen—even today. Invent the right gadget, solve the right problem, fill the right niche, and the world will beat a path to your E-mail address. Look at ATM, or FileMaker, or RAM Doubler. You, too, like Bill Gates, can be worth $20 billion by age 35.

In fact, I'm going to make it easy for you. I'll *give* you the ideas. All you have to do is be the first to produce and market these best-sellers-to-be. Selfless altruist that I am, I ask for nothing in return—except a handshake, a mention in the Read Me file, and 10 percent of the gross.

Concatenator Pro

Can somebody explain to me why Apple's CD-ROM drive requires five extensions in your System Folder? Why Microsoft Word 6 needs six extensions just to run? You need three extensions for QuickTime, seven for PowerTalk, eight for QuickDraw GX—and, incredibly, *twelve* for Open Transport!

Why can't programmers confine their start-up code to a single extension icon? I don't care if it's a 2MB icon—I just don't want to have to turn twelve extensions on or off individually to disable some feature.

That's why Concatenator Pro will be a hit. It's a simple drag-and-drop application: round up as many extension icons as you like, drop them onto the Concatenator Pro icon, and it spews out a *single* extension icon that incorporates the code of all of the originals. How glorious: you'll have one icon for CD-ROM, one for file sharing, and so on. Troubleshooting and configuration will be so much easier!

In the unlikely event that you need your original splintered constellation of extensions back, you can drag your concatenated superextension icon onto Concat Pro's icon again—and this time, it spits out the original batch.

Uninstaller Plus

For years, a program called Uninstaller has been a best-seller in the DOS/Windows world. But nobody wrote a Mac version. People said the Mac didn't need it. To remove a program, you just drag it to the Trash—right?

Not anymore. Today's programs deposit their own proprietary junk into your Preferences, Extensions, Control Panels, Startup Items, and other folders. What we need is a quick, simple utility that clears out all that crud when we remove the culprit program.

Carpal Diem 1.0

Experts say that the keys to avoiding repetitive strain injuries (RSIs) are correct posture and regular breaks. But we all know that when you're deep in that hypnotic Mac trance, sucked into some brainstorm or round of Myst, the real world evaporates. You're supposed to be thinking about ergonomics and rest breaks? Forget it.

Enter Carpal Diem, a small but ingenious control panel. It shows you graphically exactly how rotten your typing habits are, displayed as a time line (see "Carpal Tunnel Panel")—because what matters isn't how many hours a day you type, but how *intensely* you type. Better still, the program can display friendly reminders—not just every few minutes, as the shareware program TakeABreak does, but every few thousand keystrokes, which is what we really care about. It can also print out clever little reports that analyze your work habits and make suggestions.

Alas, nobody will write this program. Some user would get wrist pain despite Carpal Diem's advice, and the lawyers would descend like rain.

www.pricedex.com

You see these ads on TV all the time: "We will not be undersold!" "We'll beat any price!" "Pepto-Bismol, $1.95 this week only!"

Half the time, though, I suspect we're being scammed. The advertiser knows we don't have time to comparison shop for each little $1.95 item. We're helpless. Shoot, how would *anyone* know what Pepto-Bismol normally costs?

The PriceDex Web page changes all that. Each week, this service accepts a modem dump from every retail store in your area. Each transmission contains that store's inventory and current price list.

All you have to do is dial in and search for the item you want. Immediately, you're shown a list of local stores that carry it—and a graph of the various prices (see "www.pricedex").

"Aha," you're thinking, "but what store in its right mind would participate

continues

THE WORLD LEADER IN GRAPHICS AND MULTIMEDI

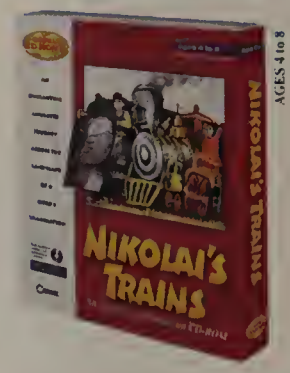
Wild Board Games™
The fun way to learn popular board games
For Macintosh® and Windows® 3.1
$24.00*

Wild Cards™
The fun way to learn popular card games
For Macintosh® and Windows® 3.1
$24.00*

Blue Tortoise™
Read, color and race to the picnic with Blue Tortoise
For Macintosh® and Windows® 3.1
$24.00*

$79.00*

Corel GALLERY™ 2 for Macintosh includes an "album" containing 15,000 clipart images, 500 fonts, 75 sound clips, 10 QuickTime™ movies, plus a state-of-the-art visual multimedia file manager.



Nikolai's Trains™
An interactive journey across the landscape of a child's imagination
For Macintosh® and Windows® 3.1
$24.00*

All-Movie Guide™
The ultimate guide to the movies
For Macintosh®, Windows® 95 and Windows® 3.1
$24.00*

Bernard of Hollywood's™ Marilyn
A multimedia journey through the life of Marilyn Monroe
For Macintosh® and Windows® 3.1
$24.00*

Corel Professional Photos™ on CD-ROM
The world's leading photo CD-ROM collection
Individual titles: $24.00* each

Volume Sets
2,500 photos on 25 CD-ROMs in each set
$144.00* each

Corel® Stock Photo Library 1 and 2
20,000 royalty free high-resolution photos on 200 CD-ROMs in each library
$949.00* each

From the makers of CorelDRAW.

Enter the Corel $3,000,000 World Design Contest and win! (September '95 to July '96)
To receive a faxed copy of the rules and an entry form please call: 1-613-728-0826 ext. 3080, Document # 1125.
To leave a message please call: 1-613-728-0826 ext. 81609.

PrePRESS® DIRECT!
1-800-443-6600
http://www.prepress.pps.com
KUR-0142

*US$ plus applicable taxes.

http://www.corel.com
Call now for faxed literature!
1-613-728-0826 ext. 3080

Circle 78 on reader service card

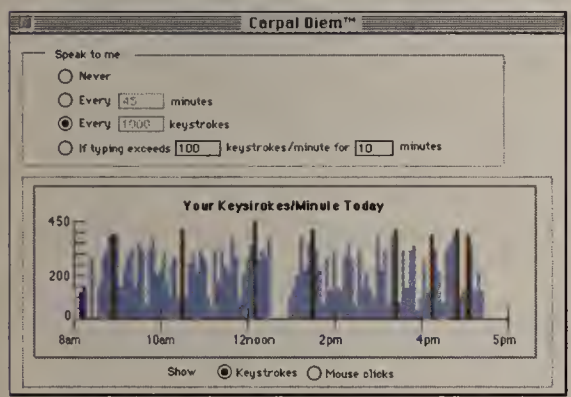
in such a program?" The answer is, of course, all of them. Each would be too paranoid to consider being left out. And the dealers that genuinely *do* offer good prices would be only too happy for the free advertising.

VideoSpigot

The SuperMac VideoSpigot was a cheap, simple NuBus card that turned your camcorder footage into high-quality QuickTime movies. Customers came by the thousands, gobbling up VideoSpigot cards.

So what did SuperMac do? It discontinued the VideoSpigot.

Today, if you want to make QuickTime movies, you have a handful of unappetizing options. Choice A: Buy a "pro" card in the $4000 range (like the



Carpal Tunnel Panel The Carpal Diem control panel graphs your keyboard and mouse activity for the day.

Truevision Targa-2000). Choice B: Buy a Quick-Cam for about $100—and live with its jerky, low-res, black-and-white movies. Choice C: Buy a new Mac that has built-in video inputs. But except for the Power Mac 8500, those Macs make QuickTime movies with a top speed of 15 frames per second—too jittery. Choice D: Get a SpigotIITape, the VideoSpigot's $800 descendant. But it, too, has essentially been abandoned—Radius has no plans to make it compatible with QuickTime 2.0 or System 7.5.

Between $100 and $800, meanwhile, stretches a market niche screaming to be filled. What's *wrong* with these companies? Why don't they reintroduce the plain old $300 Spigot? I say: If you build it, they will digitize.

QuickTime Performer

I'm astounded that nobody has thought of this: a music sequencing program that uses QuickTime 2's Musical Instruments as a synthesizer.

For years, music recording programs like Mark of the Unicorn's Performer and Opcode's Vision required a MIDI synthesizer keyboard for playback, since the Mac could produce only four cheesy notes at a time. But then Apple licensed 30 realistic instrument sounds from Roland, the synthesizer maker, and included them with QuickTime 2.0. With these Musical Instruments and the right software, your Mac can be a MIDI synthesizer.

Some notation programs can use Musical Instruments. But the world still waits for a genuine, tape-recorder–like, music-recording program—a sequencer, as it's known—that's clever enough to use Musical Instruments. Such a program would bring cheap, high-quality music-making to schools worldwide, to PowerBook-porting presenters, and to music hobbyists everywhere.

ExtensionsWorld Magazine

A brand-new Power Mac 8500 comes with 120 extensions—right out of the box.

continues

SPSS 6.1 for the Macintosh®
Real Stats. Real Easy.
Accelerated for Power Mac!

Get answers to tough questions using in-depth statistics!
Use 60+ statistics from basics such as counts and crosstabs to more sophisticated statistics including factor, regression and logistic regression.

Get fast, flexible data management!
The spreadsheet-style Data Editor makes entering, editing and managing your data fast and easy using either values or value labels. And, you can work with even your largest data files!

Work faster with an all new Macintosh interface!
Learn faster using an online tutorial and speed up analysis with task-oriented help, a statistical glossary and a new toolbar. Plus, you get fast access to all statistics through menus and dialog boxes without typing commands!

See your results quickly and clearly!
Choose from 50+ high-resolution business, statistical and SQC charts. All can be fully edited with easy point-and-click tools.

Use SPSS 6.1 for the Macintosh when you need in-depth answers quickly and easily. Go beyond summary statistics and spreadsheet row-and-column math by using the right tool for the job. SPSS enables you to answer tough questions like:

- *How satisfied are my customers?*
- *What will my sales be next quarter?*
- *What are the patterns in my data?*

Survey research
- Explore consumer awareness
- Compare perceptions of products
- Discover preferences by group

Marketing and sales analysis
- Analyze your customer database
- Forecast sales by product and region
- Improve mailing responses

Quality improvement
- Assess process capability
- Reduce nonconformance
- Spot unnatural patterns of variation

Research of all types
- Test hypotheses
- Determine group differences
- Track performance over time

Accelerated for Power Macintosh
MacOS
Call 1(800)457-8287

Get a great value – order now!
Call 1(800)457-8287
or Fax 1(800) 841-0064
or mail to: SPSS Inc., 444 N. Michigan Ave. Chicago, IL 60611
American Express, Discover, MasterCard, VISA and I.M.P.A.C. cards accepted

Name
Title
Organization
Address
City State
ZIP Email
Phone ( ) Fax ( )
A8287

Try SPSS 6.1 for the Macintosh with our unconditional, 60-day money-back guarantee.

SPSS
Real Stats. Real Easy.℠

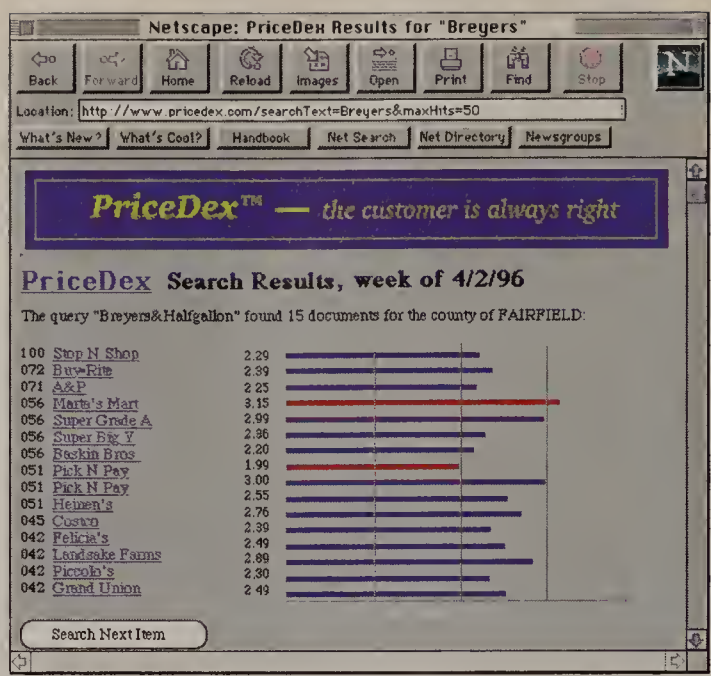
Athens • Chicago • Washington, D.C. • Bologna • Chertsey • Gennchem • Madrid • Munich • New Delhi • Paris • Singapore • Stockholm • Sydney • Tel Aviv • Tokyo • And distributors worldwide

Circle 85 on reader service card

How is the ordinary Macintosh fan supposed to keep them all straight?

Yes, folks, it's *ExtensionsWorld*, the magazine for those who loathe the jungle in every System Folder (IDG, $24.95 for 12 issues). Sample articles from the premiere issue: "65 Extensions You Can Throw Away Right Now," "The ExtensionsWorld Secret-About-Box Awards," "Exclusive: The Logic behind the System-Enabler Numbering Scheme Revealed," and "A/ROSE: Useful Software, or a Cruel Apple Hoax?"

Each issue also contains a listing of every single extension, enabler, patch, and system update Apple has ever released, complete with information on where to get it, whether to get it, and whether you can throw it away.



www.pricedex The PriceDex Web page. Each store's name is a Web link to additional store information.

PocketBoot

Why is it that the faster the Mac model, the longer it takes to start up? My Power Mac 7100 takes nearly two minutes to start up, and almost four minutes to recover from a system crash.

That's why the PocketBoot is such a terrific gadget. It looks like a sunglasses case, connects to your SCSI jack, and contains about 2MB of RAM. That's just enough room to store the information your Mac needs to start up: the routines, extensions, control panels, and so on. With all of this stored on a glorified RAM disk—the PocketBoot—your Mac will start up in about eight seconds. By my calculations, the PocketBoot will save the average Macintosh user about 35 *hours* each year of sitting there staring at the Mac OS logo.

The Upshot

Right there you've got enough great ideas to make eight millionaires—and I haven't even told you about the Modem Port Multiplier, the Word Tool-Bar Eraser, or the Newton Home Entertainment Center Remote Control Kit.

But if you play your cards right, you should be able to follow the path of self-made computer-industry entrepreneurs before you. You'll experience the Five Phases of Ultimate Product Success: glowing reviews, acclaim on the Internet, blockbuster sales, enormous profits, and finally, buyout by Microsoft. **m**

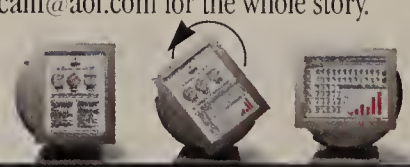
Contributing editor DAVID POGUE is the author of *Mac FAQs [Frequently Asked Questions]* (IDG Books Worldwide, 1995)—a book that made him a millionaire overnight, when measured in pesos.

The Monitor that Shows You the Whole Dam Thing.

Portrait Display Labs

The Pivot 1700™ has other 17" color monitors beat from top to bottom. It pivots from horizontal to vertical mode to give you the tallest, sharpest display you can get. Taller, even, than a 21" monitor! And much more affordable. So now you can read a full 8.5"x 11" page *without scrolling*.

Call us today or, if you prefer, e-mail us at pdlcalif@aol.com for the whole story.



800-858-7744 Ext. 31

http://www.portrait.com

Circle 89 on reader service card

This could be a best seller.

But it's free.

You can't buy the Consumer Information Catalog anywhere. But you can get it, free! It's your guide to more than 200 free or low-cost government publications about getting federal benefits, finding jobs, staying healthy, buying a home, educating your children, saving and investing, and more. The Catalog is free. The information is priceless. Write:

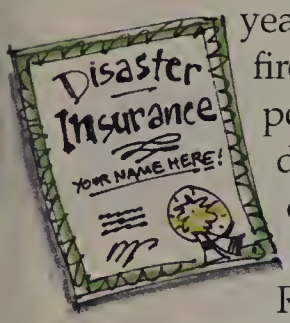
Consumer Information Center Department BEST Pueblo, CO 81009

How to make a full recovery when disaster strikes.

Disasters don't play favorites. It doesn't matter if you're a huge corporation. Or a one-man band. The result is the same: without Retrospect®, your files can be completely wiped out in a second.

1. *How to get disaster insurance for your data.*

Data loss will happen to half of us this year: meteors, fire, theft, earthquakes, power surges, hard disk failure, human error—it goes on and on. But with Retrospect and a solid backup strategy, nothing can harm your data.



2. *Before you back up.*

Figure out what you'll back up to—removable cartridges or a dedicated backup drive. For lots of files, you want a device with the capacity for unattended operation—say DAT, DLT, or an autoloader.

3. *How to back up if you're a small company.*

Retrospect will show you the best way. The EasyScript™ feature sets up a backup strategy from your answers to a few simple questions, then carries it out automatically to whatever media you select.

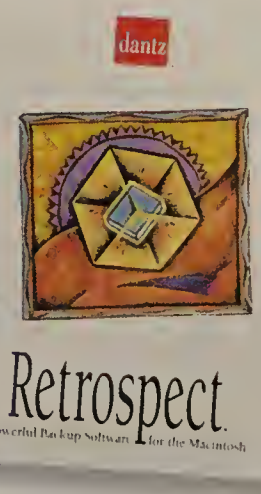
4. *How to back up if you're a big company.*

The answer is Retrospect Remote®, our network backup product. Use a set schedule or the more flexible Backup Server™ which automatically backs up Macs with the oldest backup first—ideal for PowerBooks that appear and disappear off the network. The bottom line: Retrospect Remote covers your network like a blanket.

5. *How to laugh in the face of danger.*

We're not suggesting standing on the top of the building during a lightning storm. But when disaster strikes, Retrospect can restore whatever you're missing—files from your latest backup, older files, or the entire hard drive.

Take the next step. There has to be a reason why more people rely on Retrospect than all the rest combined. Why it consistently earns the top scores, the best reviews. We have the answers. Call us at 800-982-9981 for our *Understanding Backup* white paper. It would be a disaster not to.



dantz® *To go forward, you must backup.®*

©1996 Retrospect and Retrospect Remote are registered trademarks of Dantz Development Corporation. All other trademarks are property of their respective holders. Dantz Development Corporation, 4 Orinda Way, Building C, Orinda, CA 94563. Phone: 510.253.3000. Fax: 510.253.9099. Internet: info@dantz.com, upgrades@dantz.com, www.dantz.com.

Circle 26 on reader service card

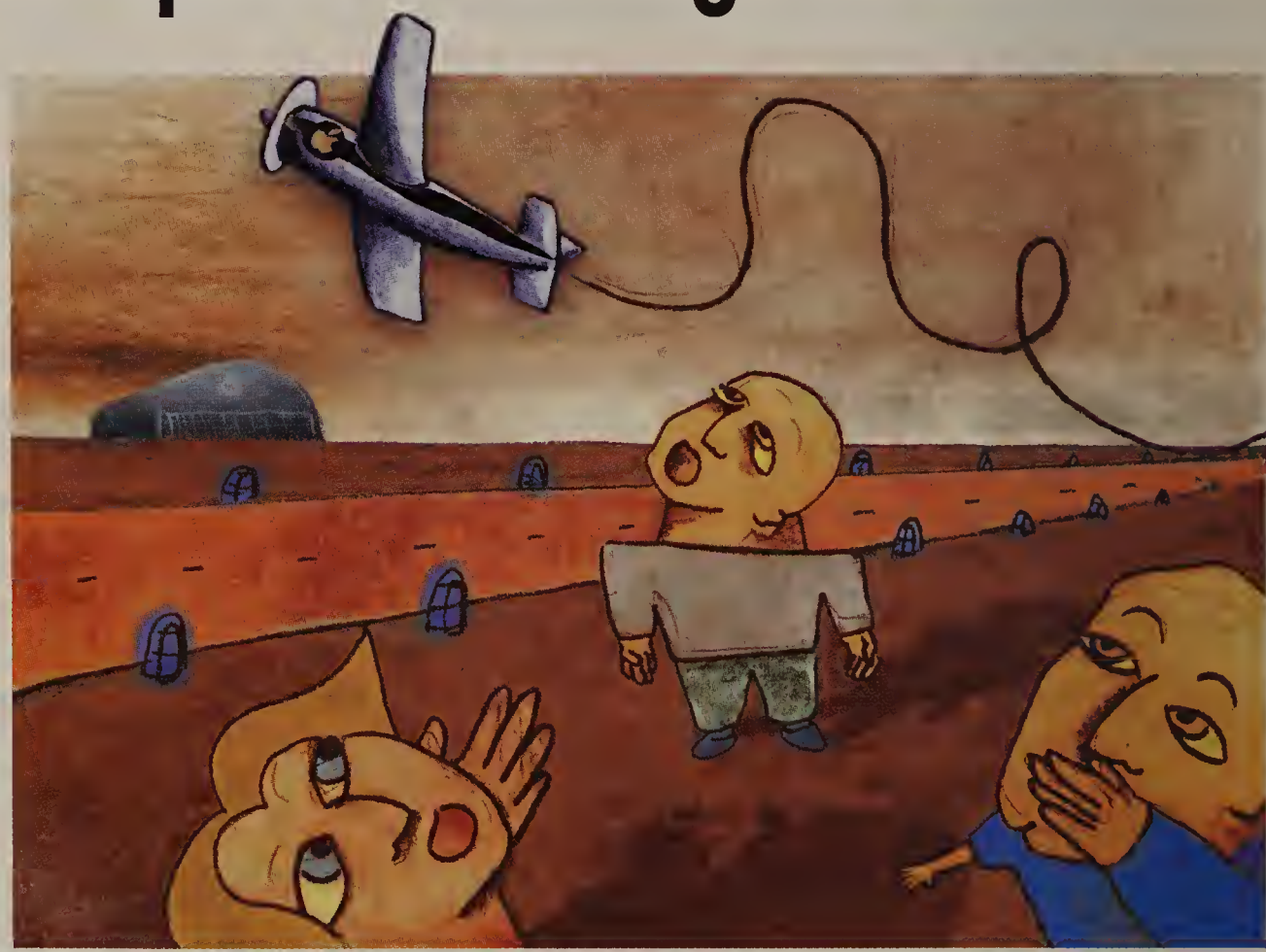
News

NEWS FLASH

Apple Fires Spindler, Brings in Amelio

A MOVE TO FIX ITS FLAWS AFTER WEEKS OF UNCLEAR DIRECTION

by Galen Gruman



JOHN RITTER

Finally, Apple may be able to put its house in order. After weeks of turmoil surrounding a $69 million loss because of lower-than-expected margins during the Christmas buying season; after months of rumors about possible mergers with and buyouts by companies such as IBM, Sun Microsystems, Sony, Fujitsu, Motorola, and Hewlett-Packard; and after a year of high-level executives' (15 of 45 have left) and key engineers' departing Apple for greener pastures, Apple's board of directors took real action.

On January 31, it fired Apple CEO Michael Spindler and demoted chairman of the board A. C. "Mike" Markkula, Jr., a founder of the 20-year-old company, to vice chairman. The new leader, announced on February 2, is Gilbert Amelio, an Apple board member who is now president, CEO, and chairman, which gives him unprecedented power at Apple. Amelio had run National Semiconductor, a chip maker that he is credited with returning to profitability during a nearly five-year stint at the top.

The board's action was welcome after three weeks of bland statements about restructuring Apple—something Apple has done once or twice a year for years, with little effect—and refocusing on the same key markets it has pursued for ten years.

What Went Wrong Apple is the number three personal-computer maker in the United States, with a worldwide market share of about 9.4 percent—and the only non-Windows company to have kept a steady market percentage despite continuing improvements in the Intel-Microsoft PC platform. Between October 1 and December 31 alone, Apple sold more than 1 million Power Macintoshes.

So why the financial shortfall? Because Apple, facing a parts shortage, shifted production to its lower-end Power Macs and Performas during the Christmas buying season. But it turned out that customers wanted higher-powered computers, and Macs like the 7500 were hard to get.

Stuck with unsold Macs, Apple dropped prices, cutting its profit per system from 27 percent a year earlier to 15 percent this fall. That's less than PC clone maker Dell Computer—which doesn't design its operating system or motherboards—made.

Apple's mistake was simple, but it was typical of the company's woes under Spindler's three-year reign. It has consistently miscalculated product development and manufacturing schedules, as well as customer demand.

A $69 million loss is not a lot of money for a company with $1.1 billion in reserves; even with an expected $200 million loss in the fiscal quarter ending March 31, Apple is in no danger of collapse. (Although the company does have about $2 billion of unsold parts in inventory.) But for industry and financial analysts, the loss was one miscalculation too many.

Apple has also mismanaged its technological development. Groups within the company battle for resources and management approval, rather than help make strategies work.

At the same time, independent Mac developers have complained of Apple's longstanding tendency to promote a new technology—QuickDraw GX, AppleScript, balloon help, PowerTalk, publish and subscribe, Taligent, ScriptX, and now perhaps OpenDoc—and then lose interest. Even when a technology has promise, Apple relies on other companies to find a compelling use, rather than use its AppleSoft division to create an application that will make people want the technology, as Microsoft does with its programs to promote new Windows technologies.

A Renewed Focus Apple says it will take several steps to refocus the company on profitable and forward-looking areas. Before he was fired, Apple CEO Spindler promised "to fundamentally change our business model." That effort is continuing. Among Apple's intended actions:

- Rely on clone makers to serve the home and small-office markets.
- Spend less time on side projects and aim the company's energies on key Mac strengths, such as publishing, the Internet, and education.

However, the company is only beginning to reveal how it will substantively address its management problems and accomplish these goals.

Accomplishing these objectives will mean expanding Apple's clone-licensing effort.

SF CHRONICLE/SABA/EDDIE LEDESMA

Apple's new CEO, Gilbert Amelio

Ironically, this reverses Apple's actions of 1995, in which it backpedaled on its initial promises to make the Mac OS license widely available. This reliance on clone makers—and Apple will need

continues on page 48

MACWORLD EXCLUSIVE

QUARK'S XPOSURE IS IN REAL TROUBLE, AND MAY NEVER SHIP. IS QUARK'S DIVERSIFICATION EFFORT IN DOUBT? *MACWORLD* PRESENTS AN EXCLUSIVE REPORT ON PAGE 48.

SF CHRONICLE/MICHAEL MACOR

Record crowds at Macworld Expo came to see hundreds of products.

Macworld Expo Delivers Hot Products

WEALTH OF PRODUCTS DRAWS RECORD CROWD

by James A. Martin

Outside it was cold, but it was piping hot inside. Despite Apple's recent financial woes, the 1996 Macworld Expo in San Francisco boasted nearly 70,000 attendees (a record that marked a 10 percent increase over last year) and more new Mac products introduced than ever before. Here are just a few products shown at Expo, not previewed in previous issues, that caught our editors' eyes.

Fly Your Mac Flight-simulator aficionados demand realism, and Flight Unlimited ($69.95) from Looking Glass Technologies (617/441-3946) has realism to spare. You'd expect hours of meticulous work on perfecting the flight models of the aerobatic flying machines (including a sailplane), but what you might not expect is the hyperreal treatment given to the external environment.

The Flight Unlimited artists did much of their development in an airplane, photographing terrain from two different altitudes. They then digitized the photos and mapped them onto a three-dimensional surface, to breathtaking effect. Looking Glass expects Flight Unlimited to be available in March.

The Mercedes of Digital Cameras The screen is the star of the $1000 QV-30, the new digital camera from Casio Computer (201/361-5400). The QV-30's 2.5-inch, active matrix, antiglare color display affords a better look at your subject (compared with a traditional viewfinder). And you can check out your digital snapshots on the spot, deleting any unwanted images. The camera stores up to 96 JPEG-compressed photos in flash memory, which you can transfer to a Macintosh or dis-

continues

IN THE NEWS

Copland's New Features 40

Making the Web Secure 41

CHRP Prototype Shown 42

Corel Buys WordPerfect 42

Faster Buses to Debut 46

ROBERT PERRY

After a successful run on the PC, Logitech's TrackMan Live, TrackMan Marble, and MouseMan Cordless (clockwise from left) make their Mac debut.

play on a television via the included cables.

Point Your Way Logitech (510/795-8500) introduced the $149 TrackMan Live, a remote, radio-controlled pointer for use up to 30 feet from a Mac; and the $39 TrackMan Marble, a thumb-operated trackball that promises precise tracking with minimal finger movement. The company also unveiled Mac versions of its $89 MouseMan Cordless, which transmits trackball movement via radio frequencies rather than a cord.

Visual Spreadsheets Excel is powerful, but it can be a bear to use unless you're a trained professional. Building a spreadsheet with Keep It Simple Spreadsheet (KISS), from Casady & Greene (estimated price $129; 408/484-9228, *csg@casadyg.com*), is a simple matter of dragging cells and mathematical operators onto a blank worksheet and then connecting them with lines, as you would connect a flowchart.

Simple relations between numbers are immediately obvious, and for the more advanced user, complicated formulas can be created and reduced to boxes with input and output registers. Casady & Greene also includes step-by-step instructions, as well as templates for common calculations.

Easier Paper Chase The office paper chase just got a little easier to manage, thanks to ePaper, a $169 full-bodied document-archiving and -management application from Second Glance Software (360/692-9241, *info@secondglance.com*). The program uses Xerox's TextBridge 3.0 OCR technology to translate scanned documents into editable text; lets you quickly annotate files using electronic rubber stamps, sticky notes, and bookmarks; creates thumbnail information on every document for keyword and other searches; and works with Apple, Epson, Hewlett-Packard, and TWAIN-compatible scanners.

KEVIN CANDLAND

One for Business, One for Pleasure

Personal document scanners have taken desktops by storm, and the $429 ScanJet 4s, pictured here, is Hewlett-Packard's (415/857-1501) entry. The 200-dpi gray-scale scanner comes with Visioneer's PaperPort 3.0 document-management software.

For less text-intensive jobs, Storm Software's (415/691-6600, *sales@stormsoft.com*) $259 EasyPhoto scanner is a quick and easy way to scan in photographs. The 24-bit color scanner handles originals up to 5 by 7 inches, and comes with software for scanning, editing, and displaying your images.—CAMERON CROTTY

systems

Copland's New Abilities

NEW OS LETS YOU ORGANIZE FILES BY CONTENT

by Galen Gruman

Apple has long promised that the Mac will be an active assistant, helping you wade through your data and make sense of it, not just serving as a repository for it. The next major release of the Macintosh Operating System, code-named Copland and due out in late 1996 or early 1997, will move the Mac a larger step in that direction.

Here are some of the new capabilities you can expect.

View by Content

A new technology tentatively called a view window lets you organize information based on your criteria.

One way to use it that wowed the audience was Copland's ability to find and organize documents based on their content. You enter words you want Copland to find in documents, and it then creates a window that contains all documents with the words, along with a ranking of how closely the document fits your search request. For example, a document that uses the words frequently is judged to be more relevant to your request than a document that contains only one instance of the word. This feature also lets you select a document and have the Mac OS find documents with similar content—no need for you to enter the search text.

Apple will use this pattern-matching technology for more than document-content searches; the technology will also let users view all applications installed on a system, or all files created by a specific user or modified after a certain date.

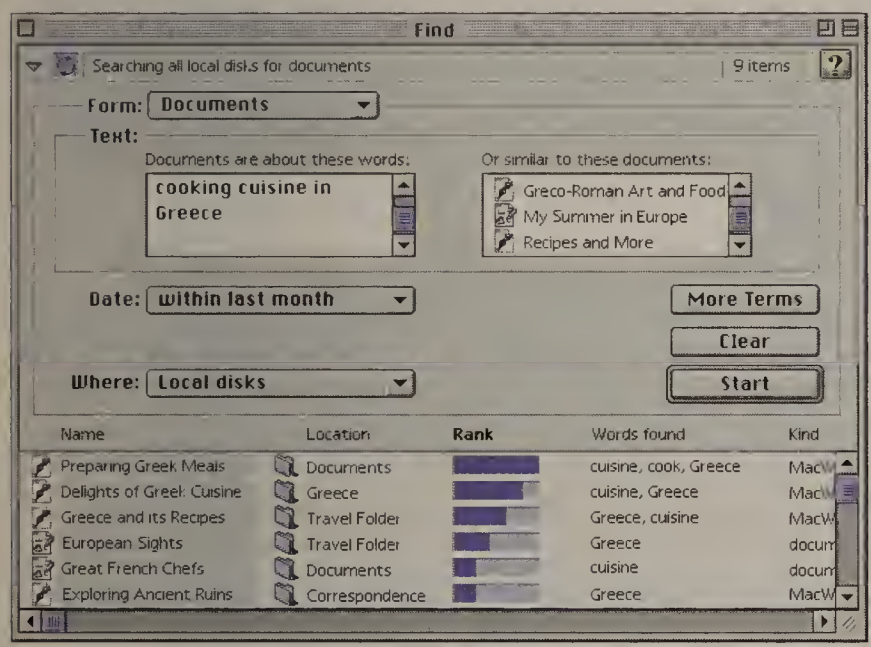
You can save any view window and have it automatically update with any new or changed documents the next time you open it, thanks to Copland's multithreaded design that allows powerful background processing.

Interface Refinements

Copland will have refinements to the user interface through-

out. One that drew audience applause was a subtle change to the Finder's file-view capabilities. Now, when a file name is too long to fit in the list view (view by name), the Finder just displays the first part of the name. If you have a long document name that ends with significant information, such as a revision number or date, you can't see that information. But Copland's Finder shows part of the beginning of the file name and part of the end, so you have enough context to readily tell files apart.

The list view is also customizable, so you can change the order of displayed information (for example, you might want the modification date—rather than System 7.5's default, the file size—to follow the file name). Copland lets you change the width of each piece of file information, as you can adjust most spreadsheets' column widths, and it will even adjust character spacing to squeeze in as much text as it can.



The Copland OS will let you find and organize your data by its content.

Restructured System Folder

Apple also plans to restructure the System Folder so that you can tell which extensions the system needs and how recent they are. Apple's product-marketing director for Copland, Vito Salvaggio, concedes that today's System Folder is a confusing morass of files, extensions, and preferences that makes system management and troubleshooting difficult. However, he notes that this restructuring may not make it into the first version of Copland. For Apple to meet its end-of-1996 release date, the company may have to pull some features and deliver them in 1997 as an upgrade.

Custom Configurations

Salvaggio also demonstrated some previously announced features, including the ability to set up multiple users on one system, each with different preferences and access capabilities. Salvaggio expects individuals who need different settings on their systems to use this feature as well. For example, a notebook user might have one group of settings on the road, when server access is unnecessary, and a different group when plugged into the office network.

You can sort of do this now by using System 7.5's Extensions Manager to save different extension and control-panel settings, but that requires a restart. Under Copland, switching user settings requires only a partial restart, which takes much less time.

Internet WATCH

BY CAMERON CROTTY

The Right Connection

When it comes to serving up content on the Internet, Macs are second only to Unix boxes in popularity, and the latest release from StarNine, now a division of Quarterdeck (510/649-4949, *info@starnine.com*), should add to the Mac's momentum. The $1295 WebStar SSL Security Toolkit coexists with any other Web server, and handles clients that attempt a secure connection using Netscape's SSL protocol.

Early this year, StarNine is planning more support for Web-based commerce. Its Business Toolkit will consist of a CGI script and a helper application to help Webmasters move information from HTML forms into processing applications (such as orders databases, credit card–checking software, or online-banking software).

In other news, Intercon (703/709-5500, *info@intercon.com*) has announced that version 1.1 of its $495 InterServer Publisher will be Open Transport–native, and that it will ship with Adobe Systems' PageMill HTML authoring software. Intercon also announced a $295 domain-name server called InterServer DNS.

New Browsing News

Macintosh Net surfers should soon have more browser options.

In the 3-D space, Virtus (919/467-9700, *info@virtus.com*) is shipping the $29 Voyager VRML 3-D helper application. You can download a trial version from *http://www.virtus.com*.

And Microsoft (206/882-8080) recently released a beta of its Internet Explorer browser for the Mac, which should ship this spring. You can download a version from *http://www.microsoft.com*. (Microsoft also bought Vermeer Technologies' FrontPage Web-authoring software.)

More Fetching Fetch

For those of you not using your Web browser to download files from FTP servers, version 3.0 of Fetch, by Jim Matthews, is available. New features for the latest version of the Macintosh FTP client include bookmark lists, plus support for System 7.5 drag and drop, multiple connections, and native Open Transport code. The single-user license fee for Fetch is $25; for more information, browse *http://www.dartmouth.edu/pages/softdev/fetch.html*.

Systems WATCH

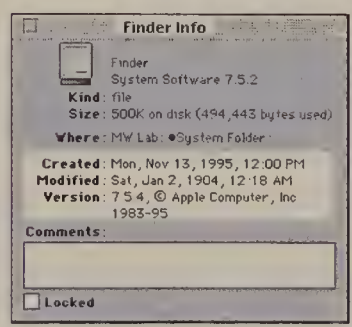
BY GALEN GRUMAN

A Step Closer to CHRP For the first time, Apple has publicly shown the Mac OS running on an IBM system. The IBM system—based on the PowerPC platform once known as CHRP and codeveloped by Apple, IBM, and Motorola—ran System 7.5 and several programs, including Adobe Photoshop 3.05 and Microsoft Excel 5.0. Apple presented the system at the Demo 96 conference in late January. According to sources, engineers at Apple have resisted working on the CHRP project, and the demonstration was meant to make Apple management's commitment to the new platform clear.

First Japanese Mac Clone Now that it has shipped its PowerWave and PowerCurve Mac clones, Power Computing is readying to enter the Japanese Mac market, which is Apple's second-largest market. Power Computing has opened an office in Tokyo and plans to launch a Japanese Mac-clone line later this year.

StarGate's Takeoff Delayed Power Computing (512/258-1350) has delayed the release of its $249 StarGate riser card, which adds two NuBus slots to the company's PCI-based PowerWave and PowerCurve Mac clones. The company found some incompatibilities with some NuBus cards that slowed performance. Affected cards include the Radius Thunder IV GX. A fixed card is due out about the time you read this. Similarly, Second Wave's (512/329-9283) XPanse PN NuBus-to-PCI adapters do not well work with some NuBus cards, including FWB's SCSI accelerators.

The Elephant-Size Fix To help PowerBook 5300, 2300, and 190 owners deal with a variety of problems, Apple (408/996-1010) has released a software patch—a 14-disk replacement of System 7.5.2 available for downloading from Apple's Internet site (*http://www.support.apple.com*). Fortunately, you really only need to download disks 1, 8, 10, 11, 12, 13, and 14; the others are unchanged. You can get a set of disks from Apple's toll-free support line, 800/767-2775. The fix is also meant for people who buy Apple's PowerPC upgrade card for the PowerBook 500's.



Look under Version in Get Info to make sure your PowerPC PowerBook's Finder is at version 7.5.4.

publishing

Color Central Image Server

SPEEDS OUTPUT AND SIMPLIFIES JOB TRACKING

by James A. Martin

Faster output speeds and improved job tracking are among the new features of Color Central 3.0, the OPI 2.0–based image-server software from Luminous (206/628-4534). Luminous is the newly formed spin-off company of Adobe Systems' prepress division.

Color Central 3.0 lets prepress houses and others use a Microsoft Windows NT–based print server, with Macs as their networked clients. NT supports multitasking over multiple CPUs.

The client/server architecture also lets Color Central send job-tracking information to client Macs, freeing the server to focus on handling print jobs. Before, users had to read the print job's status off the server's monitor.

The $3995 Color Central 3.0 is expected to ship in April.

NEWS FLASH

Corel Buys WordPerfect

MAC VERSION STILL ALIVE; OTHER PORTS POSSIBLE

by Cameron Crotty

Just a few years after buying WordPerfect Corporation in hopes of assembling a company that could compete with Microsoft in the operating systems and applications businesses, Novell has sold the WordPerfect division to Corel, a developer best known for its Windows illustration software.

The January 31 sale completes Novell's divestiture of its previous acquisitions; earlier, Novell sold its UnixWare business and ended its Digital Research DOS business.

The future of Mac WordPerfect is unclear. According to sources, the company has gutted the WordPerfect team from about 16 employees last summer to 2 this winter.

But Glen Mella, previously head of the WordPerfect Business Group, tells *Macworld* that "we're not going to leave [the staffing level] there. The right people that know this product will be involved with us."

At a press conference, Corel CEO Michael Cowpland was positive but unspecific about Corel's plans for the WordPerfect applications on the Macintosh, and hinted at increased efforts to bring Corel's other products into the Mac space. One Corel employee says Corel will port the CorelDraw illustration software to the Mac this June.

What if Michelangelo had been confined to an 8½ by 11 inch space?

The HP DesignJet 755CM large-format printer

Let's face it. Life is bigger than 8½ by 11 inches. With an HP DesignJet 755CM printer, you can now print beautiful, near-photo-quality output at sizes up to 3' by 9'. Right in your office. With the creative freedom to print whatever you want, whenever you want. And at just $11,995†, the HP DesignJet 755CM comes fully equipped with improved PANTONE®*-licensed colors, True Adobe™ PostScript™ Level 2 software, 68 MB of memory, and a one year on-site warranty. A variety of paper stocks are supported, including glossy. For an output sample or to see a demo, call 1-800-354-7622, Ext. 9933.**

HEWLETT® PACKARD

Circle 11 on reader service card

†Suggested U.S. list price. *Pantone, Inc.'s check-standard trademark for color. Adobe and PostScript are trademarks of Adobe Systems Inc. which may be registered in certain jurisdictions. **In Canada, call 1-800-387-3867, Ext. 9456. ©1995 Hewlett-Packard PE12573

To make sure they're highly-skilled, we make our employees pass an intense screening process.

(So intense it usually tells us more about those who fail.)

MacTemps is the only staffing agency that won't send you just anybody off the street. Because not everybody has the skills to pass our tests. We know Macintosh technology better than any other staffing agency. So we can thoroughly test our employees to make sure they have the skills you're looking for. Design and production on Quark XPress® and Photoshop™. Presentation graphics using PowerPoint® and Persuasion®. Multimedia using Director® and Premiere™. Not to mention help desk and technical support. Our employees know it all. If they didn't, we wouldn't offer a 110% money-back guarantee. For a highly-skilled temporary or permanent employee, call 1-800-MACTEMPS. And we'll send you the ones who pass.

Offices in 24 U.S. cities, London, Paris, and Melbourne.

MacTemps
1-800-MACTEMPS®

For some up-to-date job listings, visit our web site at http://www.mactemps.com.

Circle 60 on reader service card

multimedia

The Next-Generation CD-ROM

WILL TODAY'S DRIVES SURVIVE DVD?

by James A. Martin

For several years, deciding what CD-ROM drive to buy was about as simple as it gets: Double-speed or quad-speed? Internal or external?

But this year, consumers are suddenly facing more hardware choices than ever before. By this spring, the first 8× CD-ROM drives for the Mac will begin competing with drives offering 4× and 6× transfer rates. And by year's end, drives based on an entirely new, high-capacity CD technology called DVD (for Digital Versatile Disc) are expected to show up on store shelves.

Meanwhile, the promise of hardware speed enhancements is tempered by the fact that the vast majority of CD-ROM software developers are still optimizing their applications to take advantage of the now-obsolete double-speed CD-ROM drives' data-transfer rate.

From 4× to 8×

Quad-speed drives offer data-transfer rates of 600 KBps—four times as fast as the first generation of CD-ROM drives, hence their name. Currently, 4× drives dominate the market and sell in stores for $200 to $350.

A few vendors are now selling 6× drives (with transfer rates of 900 KBps) for $400 to $600. Meanwhile, NEC Technologies says it will be among the first to sell an 8× CD-ROM drive for the Macintosh. Although details weren't firm at press time, NEC's 8× drive will be available at a street price of $450 to $500 by midyear.

Fast-Forward to DVD

Late this year, several CD-ROM drive developers—including Toshiba, Sony, Matsushita, and NEC—are expected to release the first DVD drives. DVDs have the same physical format as today's CDs, yet DVDs will store up to 4.7GB of data (compared with today's CD limit of 660MB). The increased capacity will let developers add copious amounts of full-motion, full-frame video (using MPEG-2 compression), 3-D and virtual-reality animations, and other multimedia.

The first DVD drives are expected to be pricey, between $500 and $700. Although the hardware is still in development, DVD drives are expected to have transfer rates that exceed the 8× CD-ROM drives' 1.2GB per second. And while DVD drives will be able to play existing CD-ROM software, none of the current CD-ROM drives will be able to play DVDs.

But Where's the Software?

For now, most software developers are keeping their sights on the largest base of users—those with double-speed CD-ROM drives.

In addition, software companies aren't scrambling to keep up with the hardware because, for most applications, the 4× to 8× speed enhancements are "mostly incremental," according to Ted Pine, chairman of InfoTech, a multimedia research firm.

While developers say they're not focusing on optimizing software for the 4×, 6×, and 8× drives, the coming DVD format is another story. "That's where the real excitement in the industry is," says Stuart Burden, executive director of development for Compton's New Media. But Burden and other developers contacted wouldn't comment on any specific plans for DVD drives.

So What to Buy Today?

The majority of software initially available for DVD drives is likely to be large databases, such as telephone directories and mapping programs, along with a few games. It will be at least late 1997—some analysts guess 1998 and later—before DVD drives drop significantly in price and offer a variety of eye-popping, next-generation software titles.

As a result, a 4× to 8× CD-ROM drive will still be a viable purchase for the next 18 months or more, analysts agree. If you frequently download large chunks of data from a CD, you should buy the fastest CD-ROM drive possible, suggests Kathy Klotz, a multimedia analyst for market-research firm Dataquest. Otherwise, buy a top-rated drive at the best price, she says, and don't worry about the 4×, 6×, and 8× speeds.

Desktop LCD Monitors Get Cheaper

BUT CAN THEY COMPETE WITH CRTS?

Visionaries have long predicted that LCD panels would replace CRT monitors as the standard display device, but the high cost of active matrix screens in monitor sizes—thousands of dollars each—has kept that no more than a vision. Now, NEC Technologies (708/860-9500) has brought it a little closer to reality with the $4000 12-inch MultiSync LCD200 and the $6000 13-inch MultiSync LCD300. While hardly competitive with the $300 to $500 for a 14-inch CRT, these prices are a third of what NEC charged for last year's comparable 13-inch LCD1280 LCD display. I evaluated a prototype unit for its visual quality, since LCD panels historically don't have the clarity that CRT monitors do. The result?

The screen is big, bright, clean, and crisp. I did notice the slight pixelation that all LCD panels seem to have compared with a CRT, and fluorescent lighting can make color backgrounds lighter. But it is clear that an LCD panel can be an effective replacement for a CRT.

—GALEN GRUMAN

NEC'S LCD DISPLAYS LOOK IMPRESSIVE AND NOW COST MUCH LESS.

Special REPORT

New Mac Buses on the Horizon

BY CARY LU

With the next major revision to the Macintosh platform due in early 1997, based on the joint IBM/Apple design recently rechristened the PowerPC Platform, Apple is poised to change some of the Mac's basic peripheral-connection technologies.

One technology area is Firewire, a high-speed peripheral bus that might replace SCSI. The other technology area covers low-speed ports such as ADB and serial ports. Here, Apple's decision makers are wrestling over adopting Intel's Universal Serial Bus (better known as USB, and soon to be the new PC standard for serial ports) or sticking with the GeoPort serial design and the ADB design.

The Firewire Connection

The first in a new generation of high-speed devices using IEEE 1394—the fast serial-port protocol pioneered by Apple as Firewire—are now appearing for digital video; expect to see 1394 become the standard for scanners, digital cameras, music, and storage devices within three years.

What Firewire Offers

IEEE 1394 starts pretty much where the two slower protocols, GeoPort and USB, leave off, taking on high-speed data transfer. Unlike SCSI and USB—both of which support only a single host computer—1394 supports multiple computers with up to 63 connected devices on a branching chain. Depending on the specific hardware, 1394 currently runs at one of three speeds—100, 200, or 400 Mbps (800 and 1600 Mbps are expected in 1997). When two or more devices on the chain are communicating with each other, they automatically adjust to a mutually supported speed.

Other advantages of 1394 include the ability to plug in devices without powering down the computer, and the elimination of device-ID conflicts because devices assign themselves addresses on the fly. Containing only six wires, the 1394 cable is much thinner, more flexible, and cheaper than a SCSI cable. And because 1394 cables can supply up to 60 watts of power, devices can operate without a separate power cord.

Who Has Firewire on Tap?

The first products with 1394 are already on the market: two consumer digital camcorders from Sony, which use 100-Mbps 1394 to send images in a new compressed digital-video format called DVC. Combined with 1394, DVC will quickly replace motion JPEG as the compression standard for video editing. DVC removes the last vestige of analog signals in video production; its image quality surpasses that of the laser-video disc and professional Betacam formats.

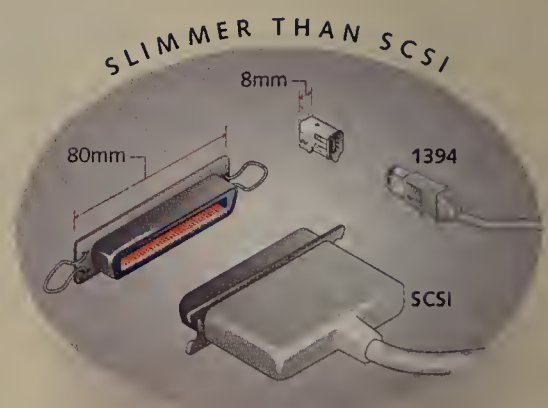
High-end electronic musical instruments are adopting 1394 as a replacement for MIDI; a 1394 connection supports multiple streams of full digital audio along with MIDI-style control codes.

For publishing, 1394 will help make lower-cost, higher-performance scanners and digital cameras possible.

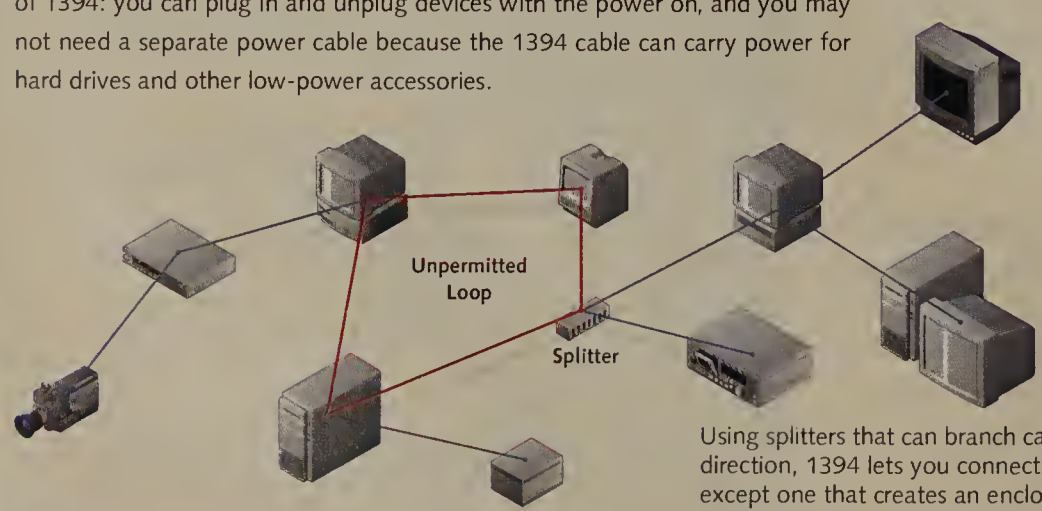
In time, 1394 will also replace SCSI on storage devices, such as hard drives and optical drives. And high-end television sets may someday come with a 1394 port and

Firewire (1394): Faster and More Flexible Than SCSI

Already the standard for digital video, Firewire, now known as 1394, supports up to 63 high-speed devices you can connect in a treelike scheme, as opposed to SCSI's linear chain. Unlike the bulky and unreliable 25- or 50-wire SCSI cables, the compact 1394 cables and connectors contain just 6 wires. Other advantages of 1394: you can plug in and unplug devices with the power on, and you may not need a separate power cable because the 1394 cable can carry power for hard drives and other low-power accessories.



Firewire connectors are about a tenth the width of SCSI connectors and Firewire cables are about half the diameter of SCSI cables.



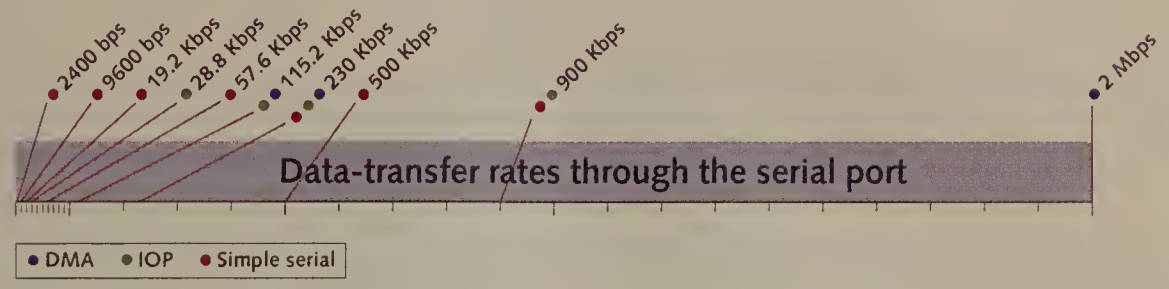
Using splitters that can branch cables at any point and in any direction, 1394 lets you connect devices in any combination except one that creates an enclosed loop (shown in red).

DVC decompression built in. A computer monitor could also connect via 1394, although a conventional monitor connection will be cheaper for some time to come.

In 1996, PCI cards with 1394 will be available for Power Macs from SCSI-adapter companies, such as Adaptec (408/945-8600). By the end of 1996 or early 1997, expect to see Macs with 1394 built in—just as SCSI is now. Low-end computers will have a single 1394 port with an internal and external connector, while high-end machines will have multiple 1394 ports.

How Fast Is Your Serial Port?

That depends on the type of serial port and how it's being used. Macs have three kinds: **DMA** (direct memory addressing) serial ports with GeoPort capability, in most desktop Power Macs (6100, 7100, 8100, and all PCI-bus Macs) and Quadra AV models; **IOP** (input/output processor) serial ports, in the IIfx, Quadra 900, and 950; and **simple** serial ports, in all other Macs, including all PowerBooks (even Power Mac models).



USAGE	SERIAL-PORT SPEED		
	DMA serial	IOP serial	Simple serial
With devices that provide external clock signals, such as fast serial-port printers (maximum speed)	2 Mbps	900 Kbps	900 Kbps (68020 or faster CPU) 500 Kbps (68000 CPU)
Asynchronous communication with full CPU attention and LocalTalk turned off*	230 Kbps	up to 115.2 Kbps	57.6 Kbps (68020 or faster CPU) 19.2 Kbps (68000 CPU)
Asynchronous communication with LocalTalk or other high-speed activity on the printer port	115.2 Kbps	28.8 Kbps	9600 bps (68020 or faster CPU) 2400 bps (68000 CPU)
LocalTalk for all Macs (peak speed)	230 Kbps	230 Kbps	230 Kbps

**Some conditions—such as inserting and (especially) initializing a floppy disk, running a IIsi or IIci with 8-bit on-board video, or turning on virtual memory—may result in missing data.*

Revisiting the Serial and ADB Ports

Deciding where to plug in low-speed devices—such as modems, printers, and pointing devices—has always been a simple matter for Macintosh users. But the limitations of ADB and serial ports could force Apple to change the Mac's low-speed port technology significantly by 1998.

Limits of the Past With a maximum data rate of 10 Kbps, an ADB port can keep up with a mouse and keyboard, but not with a graphics tablet. Older Macs' serial ports run at speeds between 57 and 900 Kbps, while desktop Power Macs and recent Mac AV models have a GeoPort, an improved serial port that runs at up to 2 Mbps, fast enough to handle a T1 digital-phone line.

GeoPort and serial-port speeds vary depending on the Mac model, the specific serial devices connected, and whether both ports are working simultaneously (see the chart "How Fast Is Your Serial Port?"). But a GeoPort or serial port can connect to only one device at a time, and no Mac has more than two such ports. At least one PCI card with additional GeoPorts should be available from a third party by midyear. Apple anticipates mostly telephony products for the GeoPort, including devices that handle both voice and data.

The only GeoPort-specific hardware currently available, Apple's GeoPort Telecom Adapter, is limited to 14.4-Kbps modem connections. However, several companies have announced GeoPort support, including IBM (for its PCs) and AT&T (in telephony products). But overall, the GeoPort seems like a nice technology that can't do very much.

Although Apple has moved toward industry-standard hardware interfaces, such as the PCI bus, it could hardly be expected to adopt the PC's standard low-speed serial ports, since they perform even more poorly than a Mac's.

Will Apple Adopt Another Intel Bus? But now Intel wants to replace the standard PC serial ports with its Universal Serial Bus. USB has a peak rate of 12 Mbps, with usable throughput of 6 to 8 Mbps—fast enough for CD audio, which can travel with other digital information. Like Apple's ADB, USB supports multiple daisy-chained devices. It was developed as a kind of third-generation ADB (the second generation was Access.bus, a failed standard once promoted by Philips, which is still used in some monitors from NEC Technologies and Sony).

Intel plans to put USB on its Pentium and Pentium Pro motherboards. However, some obstacles may slow its adoption. Intel and Microsoft have different implementations of USB, but both methods can coexist without major conflict. And USB is more expensive to build into computers than either ADB or GeoPort, although the added cost for USB accessories should be low once high-volume production begins. But USB accessories will initially cost more than the inexpensive accessories currently dominating the PC market.

When Intel was developing USB, it offered to give Apple advance information—if Apple renounced GeoPort. Apple passed but says it may adopt USB if and when PC accessories with USB come out in quantity at prices significantly lower than Mac accessories' prices, which isn't likely until 1997. Several major accessory makers are investing heavily in USB development.

For now, there's no reason to put off buying an ADB, GeoPort, or serial-port device, but if you contemplate getting a big, expensive graphics tablet or an ISDN adapter within the next year or so, you might want to consider a USB version.

MACWORLD EXCLUSIVE

Will Quark Sink or Swim?

DELAYS PLAGUE XPOSURE, BUT IMMEDIA SHOULD SHIP MIDYEAR

by Cathy Abes

Not content with QuarkXPress's secure position at the top of the page-layout heap, Quark decided to broaden its scope by branching into multimedia with the QuarkImmedia XTension (previously known by the code name Orion) and into image editing with QuarkXPosure (see *Graphics* news, May 1995). Although both products were scheduled to ship by summer 1995, neither has arrived.

Do the delays reflect trouble at Quark, or a series of unrelated coincidences? Sources close to Quark allege that shifting priorities, high turnover (for example, only one product manager at Quark has held the position for more than two years), and low morale are hurting the company's efforts. Quark's president, Fred Ebrahimi, disagrees; he claims a record profit in 1995 and a 25 percent increase in worldwide XPress sales, as well as low turnover in research, programming, and product management. He also cites a new commitment to improved customer support. Sources paint a darker picture of a Quark stressed by inconsistent management and shifting priorities.

XPosure: Grim Prognosis Groomed by Quark as a Photoshop killer and first shown in prototype form over a year ago, QuarkXPosure generated much excitement among artists and publishers.

But XPosure has yet to ship, or even go into beta testing. A joint project between Quark and JVC, a Japanese company that has not previously brought a Mac product to market, XPosure faces serious technical problems, says Ebrahimi, who admitted that "it's not in a condition I would consider shipping." While hoping for a solution, Ebrahimi says, "We didn't do the R&D work. We have no control over the [core] technology." He said Quark will decide "in the next few months" if XPosure can be fixed to Quark's satisfaction and that the product has "about a 50-50 chance" of survival.

The picture actually looks much bleaker, according to knowledgeable sources who say that conflicts between the two companies over JVC's refusal to correct serious performance and interface problems have effectively derailed the project. (JVC would not comment.) As a result, Quark's XPosure design team has been reduced to a skeleton crew, these sources say. Ebrahimi would not comment on staffing.

Sources say that an agreement letting Quark use PixelCraft's color-separation architecture in XPosure also fell through late last year. Neither Quark nor PixelCraft would comment on this allegation.

Immedia: Should Ship This Year Quark's multimedia XTension, Immedia, is in much better shape. The company says Immedia will be out by summer; beta testing is expected to begin by late February.

Immedia is taking a different approach to multimedia publishing than programs like Adobe's PageMill, eschewing Internet standards such as HTML in favor of Quark's own browser, which would work as a stand-alone viewer or as a plug-in for Web browsers like Netscape Navigator. Ebrahimi says Immedia is designed to deliver documents that have layout, typography, video, and sound, and that HTML and other Web-publishing technologies simply can't produce such design-oriented documents.

JOHN RITTER

XPress: Not Top Priority The status of XPress 4.0 is less clear. Last spring, Quark chairman Tim Gill described an initial features list at the QuarkXPress Conference and said that 4.0 would ship toward the end of 1995 (see *Graphics* news, August 1995). Ebrahimi says Quark has no schedule for XPress 4.0. He would like it to ship this year, but "it's fine with us if it ships next year."

That's because the priority project at Quark right now is Immedia, which he believes will broaden Quark's business.

A Future Assured? Quark clearly feels its superior technology will maintain its edge over competitors in the long haul. But can a one-product company turn into a successful multiproduct entity, given Quark's reputation for being difficult and its dependence on one man—Gill—as the visionary and primary architect of its key technologies?

"APPLE'S NEW CHIEF"

continued from page 39

more licensees than Power Computing and Umax—to serve the low-profit markets may spell an end to or significant reduction in the Performa line.

In recent months, Apple has already begun shedding several projects, including the Kaleida multimedia scripting-language project and the Taligent user-interface/development-environment project, both done jointly with IBM; the Dylan project to develop a scripting language for the Mac similar to Microsoft's successful Visual Basic for Applications on Windows; and most recently PowerTalk, an E-mail services technology.

And Apple is now showing the public some of the progress the company has made in the development of the Copland OS, to calm fears that this major effort has been sidetracked (see "Copland's New Abilities," in this section). But Copland managers also say Apple is willing to drop some features in the first Copland release if that's what it takes to ship Copland by spring 1997. One delayed feature could be the planned simplification of the System Folder, say these managers. Another delayed technology may be Copland's implementation of QuickDraw GX, say sources at Apple.

According to David Nagel, Apple's research chief, Apple has picked three technologies to form the basis of the company's future: Copland, the Newton personal-digital-assistant technology, and the Pippin game-player/Internet-surfer system.

Additional reporting by CAMERON CROTTY and CHARLES PILLER. For the latest on Apple's restructuring, see *Macworld*'s online coverage at *http://www.macworld.com*.

The Best in 3D Just Got *Faster!*

NOW SUPPORTS

QUICK DRAW 3D

QuickDraw 3D will revolutionize the way you do 3D on the Macintosh: **• No more wireframes • No more arcane 3D files • No more SGI envy • Work with texture-mapped objects in real time • Cut and paste your 3D objects as easily as text.** We're talking total, real time interaction, the way 3D should be. Just think what QuickDraw 3D and Infini-D will do for your creativity.

Only Specular could make 3D this easy. No other program can touch Infini-D's combination of powerful features, ease-of-use and competitive price. Infini-D 3.0 already gives you spline-based modeling, animated spline morphing, editable motion paths and velocity graphs; think of QD3D as icing on the cake. You owe it to yourself and your Mac to take a look at Infini-D 3.0.

OUR GUARANTEE

If for any reason Infini-D 3.0 fails to meet your expectations, return it within 30 days for a full refund!

VISIT OUR WEB SITE

http://www.specular.com

Specular

FOR MORE INFO OR A FREE CATALOG, CALL 1·800·433·7732

ComputerWare 1-800-326-0092 MacMall 1-800-222-2808 MacWarehouse 1-800-255-6227 MacZone 1-800-248-0800

Circle 41 on reader service card

If you see this in your head

you need this in your hand.

You've got an idea busting to get out. A tire-smoking, head-smacking, gold-pencil-winning idea. And there's only one way you're gonna pull it off. You grab your Wacom. The one with the Erasing UltraPen. The only pen that's incredibly well balanced, because it has no cord or batteries to make it top- or bottom-heavy. So *right,* so responsive to every move of your hand, it makes drawing, retouching or editing images on your computer feel as natural as breathing air. Now you're into it. You're masking and moving, brushing and stroking, sharpening and blurring with zen-like control. Every pressure-sensitive tool in your software feels like it's coming alive at your fingertips. No way can you get response like this with anything but a Wacom. And no way does this idea get anything less.

The ArtZ II line. 6x8, 12x12, & 18x25.
All compatible with your software, your computer, and your state of mind.

WACOM

Get us on the phone, get us on the web, but get a Wacom. Call 1-800-922-2585 for the nearest dealer or FastFax information. On the web, we're http://www.wacom.com

Artwork created by Paul Noll of Portland, OR with a Wacom ArtZ II & Adobe Photoshop. 1996 Wacom Technology Corp. 501 SE Columbia Shores Blvd. #300 Vancouver, WA 98661. Wacom and ArtZ II are registered trademarks and UltraPen is a trademark of Wacom Co., Ltd. All rights reserved. All other trademarks are property of their respective companies.

Circle 146 on reader service card

New Products

THE LATEST MACINTOSH RELEASES

COMMUNICATIONS

28.8 Modems for All

Everyone wants a 28.8-Kbps modem for online and Internet access. U.S. Robotics (708/676-7010) now offers these fast modems for desktop and notebook Mac owners along with fax software and an Internet connection kit. For the desktop, U.S. Robotics has the $279 Sportster 28.8 Faxmodem and the $329 Sportster Voice 28.8 Faxmodem (it includes a speakerphone, voice mail, and call logging), both of which support the new 33.6-Kbps extension to the 28.8-Kbps V.34 standard. The company also offers the $329, 28.8 PC Card for Mac, which fits in the new 5300-series and 190-series PowerBooks' PC Card slots.

Fax That Server

Global Village Communication (408/523-1000) has added fax-receiving capability to its $2099 OneWorld Combo and $1499 OneWorld Fax telecommunications network servers. The upgrade is $99.

DISPLAY

Colorful Monitors

Monitor makers constantly refine their displays and thus always seem to have a new model available. Here are some of the latest crop. (Note that you'll have to buy a Mac adapter separately; it costs about $30.)

• Corion Industrial (408/980-8988) has introduced its ArtMedia monitors, which come in 14-, 15-, 17-, and 20-inch models. All use Trinitron tubes. They are expected to ship by July.

• Orchestra MultiSystems (714/891-3861) offers the $629, 17-inch Tuba II and the $429, 15-inch French Horn II monitors.

• Sampo Technology (770/449-6220) has the $949, 17-inch AlphaScan 760.

• Smile International (714/546-0336) is shipping the $720, 17-inch CA1716SL and the $420, 15-inch CA1516SL.

Smile CA1716SL

• Techmedia Computer Systems (714/379-6677) is shipping the TCM-1750, a 17-inch monitor that costs $699.

PCI Video Cards

Itching to use one of the PCI slots in your new Power Mac? Consider Integrated Micro Solutions' (408/369-8282) TwinTurbo-128M2 video-display card. The card accepts standard Mac VRAM SIMMs to increase the card's standard 2MB of video RAM to 4MB. The $399 card also has built-in QuickDraw acceleration for movie playback.

Meanwhile, Micro Conversions (817/468-9922, *mcimktg@onramp.net*) will ship two low-cost PCI video cards in March: the $319 1324PCI with 1MB of VRAM and the $375 1724PCI with 2MB of VRAM.

EDUCATION

Multimedia Design Courses

Peachpit Press (510/548-4393) has released four CD-ROMs that teach professional graphics and multimedia production skills. The three Color-Course CDs—Photography, Illustration, and Imagesetting—cost $50 each; the Mac-Graphics Interactive Workshop costs $80.

Reading, 'Riting, and 'Rithmetic

Written by teachers, the $149 nine-course Elementary Science and Math Software CD from HyperTech Media (301/447-1689) covers weather, buoyancy, insects, seeds, plant growth, acid rain, food chains, ecological balance, and math. The company also offers two CDs aimed at teaching young children how to read and write: Old Turtle, and Alexandra, Keeper of Dreams, both based on popular books of the same names. They cost $49 each ($69 bundled).

Make Your Own Music

Voyager (212/431-5199) has released Making Music, a $40 CD that teaches children ages five and up how to make music.

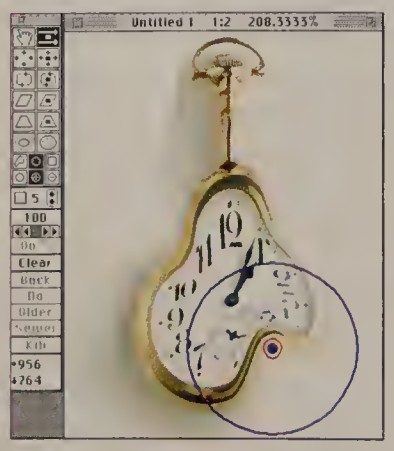
GRAPHICS

Automated Image Conversion

binuscan (212/681-0600) has enhanced its $1950 ColorPro software with the ability to convert RGB images automatically to black and white. The program works in the background, color-correcting and sharpening the image before converting it. The program also performs CMYK separations and Photo CD conversions.

Stretch That Image

The Valis Group's (415/435-5404, *valisgroup@aol.com*) $199 Flo' 2.5 lets you work with an image as if it were on a rubber canvas that you can stretch. The Flo' package includes a stand-alone version and a Photoshop plug-in.



Flo' 2.5

CAD Improvements

Bentley Systems (610/458-5000) has revised its MicroStation V5 CAD software. The new MicroStation 95 costs $3950, with upgrades from V5 priced at $475. The product runs on Power Mac systems; several Unix workstations; Windows NT, 95, and 3.1 systems; and OS/2 systems.

Meanwhile, Ashlar (408/746-1810) has introduced DrawingBoard, a $250 cross-platform CAD program aimed at nonprofessionals doing home and landscape remodeling.

Packaged Artwork Galore

Dozens of companies offer clip art, stock photos, and model libraries. Here are some of the latest offerings.

• Replica Technology (716/337-0621) offers five interior-design–oriented collections of 3-D objects for use in Infini-D, as well as five for Strata StudioPro. Prices range from $65 to $129.

• Image Club (403/262-8008, *imageclub@aol.com*) has the $99 Sketches on the Town collection of nighttime entertainment images and the $99 Businessville conceptual business images.

• The Stock Market (212/684-7878) has a second volume of stock images; reproduction prices vary based on how an image is used. Meanwhile, Index Stock Photography (212/929-4644, *info@indexstock.com*) has put some of its images on its World Wide Web site (*http://www.indexstock.com*); to get the full-resolution image for personal use, you fill out an E-mail form.

• T/Maker (415/962-0195) has released the ClickArt Express series, which contains 16 titles that cost $15 each and offer 100 to 200 images each. Titles range from Framers & Bursts to Real Estate.

• FoodPix (310/837-9900, *foodpix@aol.com*) is the first stock-

continues

New Products

image agency devoted to food-related images. There are over 1900 images in its first CD. Republication prices vary.

INPUT DEVICES

Bar-Code Reader

Percom (503/344-1189) has introduced the $249 Bar Code EasyWand, an ADB-based reader wand and software-based decoder.

MULTIMEDIA

Learn 3-D Animation

Electric Image (818/577-1627, *electric.img@applelink.apple.com*) is shipping the ElectricImage Scholastic Edition, a $795 subset of the company's 3-D–animation software aimed at students. The company also recently released version 2.5.2 of the $7495 full ElectricImage as a free upgrade to version 2.5 owners.

Speedy CDs

Toshiba America (714/457-0777) has introduced the XM-3701 series of 6.7-speed CD-ROM drives. They also support 1× and 2× speeds. Internal drives cost $415, external drives $515.

NETWORKING

More Ways to Communicate

Stalk Software (415/383-7164, *sales@stalker.com*) has added three messaging modules for its CommuniGate integrated-messaging platform: SMTPGate for Internet mail, PaperGate for wireless paging, and PrintGate for routing E-mail and faxes to a local printer. Prices vary based on the number of users.

Network Backup

Legato Systems (415/812-6000) has announced ClientPak for Macintosh, a $1500 network-backup program that lets users recover data without administrator intervention.

PRINTING

Color Laser Choices

As color laser technology gets more affordable, more companies will offer it. QMS (334/633-4300) is the latest entrant, with three choices: the $5799 magicolor CX/8 (with 8MB of RAM and 300-dpi color output), the $6499 magicolor CX/20 (with 20MB of RAM and 600-dpi color output), and the $7999 magicolor CX/32 (with 32MB of RAM and 600-dpi color output). All three models support 600-dpi black-and-white output.

Richer Color Inks

Graphic Utilities (408/577-0334) is offering pigment-based ink-refill cartridges for Hewlett-Packard ink-jet printers. The use of pigments, rather than standard dyes, should make colors richer.

PUBLISHING

Consistent Color Gets Closer

To help designers and publishers get consistent color, several companies are offering help.

- Praxisoft (703/729-3391, *praxiscorp@aol.com*) has released the $129 Color Compass 1.1, which lets you create colors that you can use across programs. It also supports ColorSync for consistent printing. The company has a $100 version that works as a plug-in for QuarkXPress.
- Lasergraphics (714/753-8252) has released its $895 FullCircle closed-loop color-calibration software. It requires use of a Lasergraphics film recorder.
- NewGen Systems (714/641-8600) has released the $16,995 ChromaxPro Color Proofer, a PostScript-compatible dye-sublimation printer with built-in color-management controls.

Working with Fonts

Fonts are like potato chips: you always want more. Monotype Typography (312/855-1440) has released version 5.0 of its $50, 4100-font CD collection. You pay for individual fonts as you unlock them.

And if you're looking for something different, consider the $50 Magick & Mystick set of symbol and talisman fonts from Deniart Systems (416/941-0919).

STORAGE

Ever Cheaper Capacity

Quantum (408/894-4000) plans to begin shipping in March 1996 two 3.5-inch high-capacity internal hard drives: the $395, 2.3GB Sirocco and the $265, 1.6GB Sirocco. Yes, you read this right, but note that these prices are what Quantum charges resellers, so store prices will be 20 to 40 percent higher.

Quantum Sirocco Drive

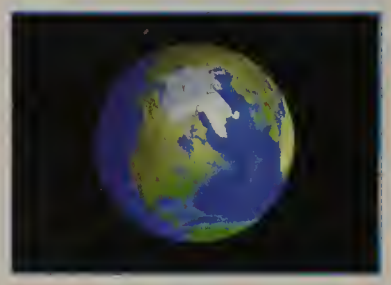
TITLES

Insider's Guide

Want to know as much as a *Macworld* editor about the computer industry? Check out *PC Roadkill*, a $20 book by Michael Hyman from *Macworld*'s sibling company IDG Books Worldwide (800/434-3422).

The World on Your Desktop

The powerful imagery of Earth as seen from satellites is now available on CD-ROM. Now What Software (415/885-1689) offers Earthscapes in Time, a $50 CD that shows how the Earth has evolved. And Rocky Mountain Digital Peeks (303/258-3779) offers the $39 Earth Observatorium, which is based on a space shuttle's Earth observations.



Earthscapes in Time

Healthy Computing

As computers have become popular, it's clear they can be misused in ways that lead to health problems. Two new books try to prevent such problems: O'Reilly & Associates' (707/829-0515) $22 *The Computer User's Survival Guide*, by Joan Stigliani, and Prentice-Hall's (800/382-3419) $19 *Compute in Comfort*, by Paul Linden.

Internet Guides

Looking to get on the Internet but don't know where to go once you're there? IDG Books Worldwide (800/434-3422) offers two guidebooks: the $40 *Internet Yellow Pages 1996 Edition*, edited by Gregory B. Newby (how ironically he's named!), and the $20, *60 Minute Guide to the Internet*, by Andrew Kantor.

UTILITIES/TOOLS

Virus Protection

S&S Software International (617/273-7400, *info@drsolomon.com*) has released Dr. Solomon's Anti-Virus Toolkit, a $99 utility that detects and deletes viruses.

CD-ROM Drives' Best Friend

FWB (415/325-4392; *info@fwb.com*) has revised its CD-ROM ToolKit, boasting a new interface. Version 2.0 costs $79; upgrades cost $29.

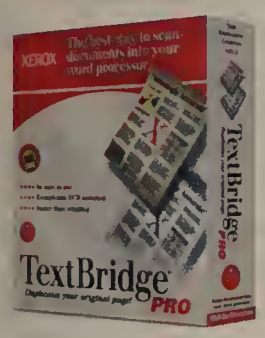
VENDORS: TO HAVE YOUR PRODUCTS CONSIDERED FOR PUBLICATION IN *NEW PRODUCTS*, SEND A PRESS RELEASE WITH PRODUCT DESCRIPTION, PRICE, AVAILABILITY, AND READER CONTACT INFORMATION, PLUS OPTIONAL PHOTO OR SCREEN SHOT, TO NEW PRODUCTS EDITOR, *MACWORLD*, 501 SECOND ST., SAN FRANCISCO, CA 94107; NEW_PRODUCTS @MACWORLD.COM.

¶

Our TextBridge Pro scanning software even reads the characters you don't see.

If you've ever scanned text, you know. Getting tabs, margins and paragraph breaks right is just as important as getting words right. Because without format, you might as well retype the whole thing.

Scanning pages with TextBridge® Pro OCR software is just like putting the original document straight into your Mac. Headers, columns, cell tables, text and all. You get a formatted document you can work with right away.



TextBridge Pro scans text directly into any word processing program with superior accuracy. It's also accelerated for the PowerMac. And with the Xerox Satisfaction Guarantee that includes unlimited toll-free support†, plus a thirty-day, risk-free offer, you just can't go wrong.

To learn more, call us at *1-800-248-6550, ext. 3,* visit us at www.xerox.com/products/tbpro/ or see us on CompuServe. You'll find out more about the scanning software that can read almost anything. Even if it's invisible.

*Upgrade to TextBridge Pro from any OCR scanning software for just $129.**

THE DOCUMENT COMPANY
XEROX

†For registered users. *Manufacturer's suggested retail price. Actual price may vary. ©1996 Xerox Corporation. Xerox,® The Document Company,® the stylized X, and TextBridge® are trademarks of Xerox Corporation.

Mac Zone PC Zone — Multiple Zones International, Inc. · EGGHEAD SOFTWARE — North America's Software Experts · PC Mac Connection · COMPUSA · COMPUTER CITY · MICRO CENTER · NECX

Circle 100 on reader service card

Reviews

Adobe Illustrator 6.0

NEW TWEAKS NOT ENOUGH TO SURPASS FREEHAND 5.5

HANK OSUNA

DON'T LET THE VERSION NUMber fool you: Adobe Illustrator 6.0 is not a dramatic upgrade. In fact, it may be the least substantial full upgrade in Illustrator history. The core program remains virtually unchanged since version 5.5, with modifications restricted almost exclusively to plug-ins. Even so, if you're a true-blue Illustrator user who'd rather eat rocks than switch to Macromedia FreeHand 5.5, then you'll want to upgrade to Illustrator 6 as soon as possible. The enhancements are few in number, but they eliminate many of the headaches associated with previous versions.

Except for a minor gradient hiccup in version 5, printing from Illustrator has always been extremely reliable; now it's easier to use. You can print color separations directly from Illustrator 6 without resorting to the Separator utility. If you encounter PostScript errors (such as limitcheck), you can convert gradients into blends, and tile patterns into objects, using the new Expand command. These enhancements are hardly exciting—in a perfect world, Illustrator would have always offered such options—but they make printing less of a nuisance.

TIFFs Were Meant to Be Tagged

In 1988, FreeHand 2.0 introduced support for TIFF images. More than seven years later, Illustrator follows suit. In fact, Illustrator has gone positively nuts in the compatibility department, importing or exporting a total of 15 file formats, including Kodak Photo CD, JPEG, and flattened Adobe Photoshop 3 images. Best of all, Illustrator 6 includes a new EPS parser that lets you open drawings created in FreeHand and other programs. I was able to open every illustration I tried, including a few that contained imported images and custom PostScript fill patterns. Only text proved a problem, sometimes breaking into hundreds of separate blocks.

But while Illustrator's TIFF support comes as welcome news, its implementation suffers. Where FreeHand wisely tags TIFF files on disk—the *T* in TIFF stands for *tagged*, after all—Illustrator imports every pixel and converts the image into its internal PostScript format. This means more work for Illustrator and more waiting for you. For example, I imported two Photo CD images into both FreeHand 5.5 and Illustrator 6. In FreeHand, it took a few seconds to import the images, and the completed illustration consumed 33K on disk. In Illustrator, it took a whopping 14 minutes to import the images, and the finished illustration consumed 44MB—

RATINGS	Outstanding ★★★★★ = 9.0–10.0	Very Good ★★★★ = 7.0–8.9	Good ★★★ = 5.0–6.9	Flawed ★★ = 3.0–4.9	Unacceptable ★ = 0–2.9

more than 1000 times the drive space that the FreeHand file took.

FreeHand speeds up screen redraw by letting you control the on-screen resolution of an imported TIFF image, making screen redraw nearly instantaneous; Illustrator lacks image-redraw controls and at times is unbearably slow. On the other hand, Illustrator wisely tags EPS images on disk and imports just the PICT preview, so if you want to import large images, you're better off sticking with the EPS format, just like in the old days.

Illustrator and Photoshop

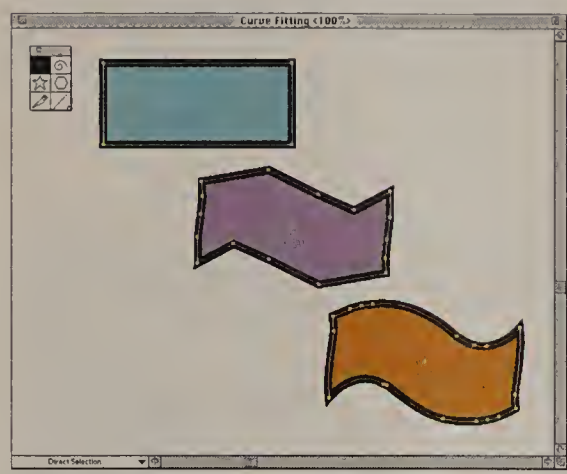
Since the overwhelming majority of Illustrator artists also use Photoshop, Adobe has built a virtual bridge between the two. You can now drag objects from Illustrator and drop them into Photoshop. Photoshop rasterizes the objects on the fly according to the resolution of the image window, so higher resolutions yield more pixels. You can likewise drag images from Photoshop into Illustrator, but only at 72 dpi. You need System 7.5 and lots of RAM (at least 32MB) to take advantage of drag and drop, but to its credit, Illustrator relies on the Mac's native drag-and-drop functions, rather than infesting your system with Microsoft OLE (as its sibling Adobe PageMaker does).

You can also rasterize objects directly within Illustrator, lift colors from pixels using the eyedropper, and apply Photoshop-compatible filters to imported images. Illustrator supports a wider range of Photoshop filters than FreeHand does, including the external filters that ship with Photoshop. The one caveat is that you cannot apply a filter to a tagged EPS image, so you have two choices: either import an image in its entirety and retain the option to filter it, or tag the EPS file on disk and do without filters. There is no need for such a trade-off in FreeHand.

Plug-ins Come of Age

In version 5, Adobe opened up Illustrator to third-party plug-ins. To get the ball rolling, Adobe threw in a few plug-ins of its own. Illustrator 6 expands plug-ins, permitting them to appear as commands or tools. Where you once had to choose commands and enter numerical data to create polygons, stars, and spirals, you can now drag with tools. Illustrator equips the tools with lots of keyboard tricks, allowing you to add sides to a polygon or modify the twist of a spiral as you draw the shape. These are some of the best tools for creating primitives (simple shapes) that I've seen.

Version 6 also adds curve fitting, which lets Illustrator distort paths accurately. For example, where the old Twirl filter merely moved points around, the new Twirl command adds points intelligently and bends segments with mathematical precision (see "Distortions Done Right"). Only a handful of Illustrator's commands take advantage of the new curve fitting, but this feature should be a boon to third-party plug-in developers that do not include curve-fitting capabilities of their own.



Distortions Done Right The orange shape is the result of applying Illustrator 6's new Twirl tool to the blue rectangle; the purple shape shows the less-desirable results of Illustrator 5's Twirl filter. Thanks to curve fitting, Illustrator 6 is able to add points and bend the segment where needed.

Other plug-in improvements include a floating palette of alignment and distribution options and a Control palette for quickly moving, scaling, and rotating whole objects. A new Path Pattern filter lets you apply specially constructed tile patterns to the stroke of a path. Illustrator can stretch and bend the tiles (again using curve fitting) so that the tiles follow a path's twists and turns like diamonds along the back of a rattlesnake.

The knife function—implemented both as a tool and a command—is the rotten apple in the new crop of plug-ins. Designed to create free-form slices through filled objects, it seems to have missed the testing cycle. The knife has a habit of deleting unfilled paths, particularly closed ones. You can spare unfilled paths by pressing the control key, but this essential trick goes undocumented. And a documented technique for duplicating sliced paths by double-clicking on the knife tool icon doesn't work.

FreeHand Stands Tall

When all is said and done, FreeHand 5.5 retains a few key advantages, especially in the realm of blends. Illustrator's reliance on a tool instead of a command makes blending more cumbersome than it should be; the blend function is notorious for generating errors if you don't click according to rigid specifications; and Illustrator can't redraw blends when you move, edit, or recolor shapes.

Illustrator's autotracing function is similarly inferior. Despite Illustrator 6's support for a multitude of image formats, black-and-white tracing templates are limited to PICT or MacPaint formats. You can't adjust the template after importing it, and Illustrator can trace only one path at a time.

FreeHand also continues to be the faster program, especially where text and imported images are concerned. FreeHand lets you mix page sizes in one document, automatically advance from one page to the next, and zoom and scroll with far more precision. And perhaps most important, only FreeHand 5.5 exists on both platforms. Illustrator for Windows has stalled at version 4.1, essentially the equivalent of Illustrator 3 for the Mac.

The Last Word

Illustrator does offer its share of advantages. Even FreeHand devotees admit Illustrator's pen tool is a work of art. Illustrator also provides better gradients, masking, guidelines, and transformation capabilities in addition to shape-creation tools, curve fitting, and Photoshop support. But the plain fact is that FreeHand has made more substantial progress than Illustrator in the last two years and looks poised to continue moving aggressively into Illustrator's territory. If FreeHand doesn't interest you, then the changes in Illustrator 6 justify the $99 upgrade cost. But if you're on the edge, give FreeHand 5.5 a serious look before making your decision.—DEKE McCLELLAND

RATING: ★★★★/7.1 **PROS:** Improved file-import capabilities; drag and drop between Illustrator and Photoshop; supports Photoshop-compatible filters; revised shape-creation tools; curve fitting for better distortions. **CONS:** Inefficient image handling; clumsy blending and tracing; knife tool has problems. **COMPANY:** Adobe Systems (415/961-4400). **LIST PRICE:** $595

FileMaker Pro 3.0

DATABASE FAVORITE GOES RELATIONAL, WORKS THE WEB

FILEMAKER PRO HAS DEVELOPED an outstanding reputation over the years as a database for mere mortals, not just programmers. Year after year, it has scored well with end users, more on the strength of its usability than on its power. Building on this legacy, FileMaker Pro 3.0 offers improved ease of use and a power boost while maintaining its reasonable price.

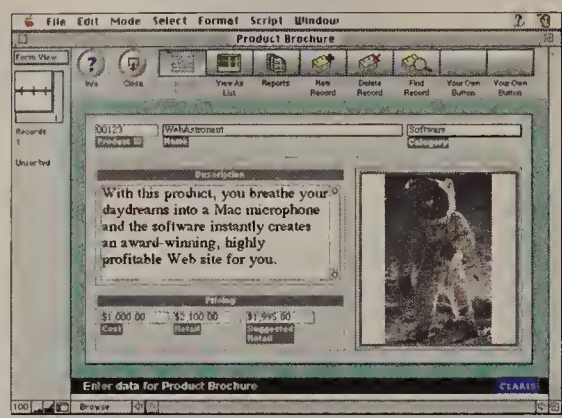
Learning to Relate

The simplest database is a two-dimensional table, much like a spreadsheet. The simplest sort of *relational* capability is to look up data in one of these tables and add it to another table. In a relational link, two columns with the same information in two different tables—a column of Social Security numbers that appears in a table of employee salaries and in a table of employee home addresses, for example—are used as the lookup connection between the tables. With clever design, you can arrange a relational database to contain little redundant information (for example, storing address data in only one place), so that large multitable business databases become much more compact than they would be if everything were stored in a single table.

Earlier versions of FileMaker could perform a limited type of relational lookup; 3.0 is a fully relational database, supporting both one-to-one and one-to-many links, a dramatic improvement for users with more challenging database needs. To implement table linking, FileMaker Pro 3.0 uses a spartan dialog box rather than the fancy graphical mapping found in competing packages, but it works well enough for the typical small-business environment.

The Big Easy

The new relational capabilities are great for FileMaker developers, who usually generate the most complex FileMaker applications. But for nonprogrammer end users looking for easy database solutions, the templates provided on CD-ROM will be the biggest news in this release. A group of 23 business templates covers everything from asset management to time cards, with professional-quality expense-control systems, personnel databases, and inventory/accounting software. The 8 education templates run from the obvious (student records) to the adventurous (a nifty Field Trips template), and the 13 home templates include one for recipes, a wedding planner, a medical-records keeper, and a check tracker that resembles a mini-Quicken.



Get What You Want You can set up a product catalog quickly with the appropriate FileMaker template, and with a little script engineering you can make the catalog a Web site.

You can easily take all of the templates apart and rebuild them to your heart's desire in FileMaker's Layout mode; a first-time user can remake templates into a custom application in a single afternoon using only the information in the built-in tutorial. This sort of simplicity is the main reason for FileMaker Pro's popularity in the Macintosh small-business-database market.

Nothin' but Net

FileMaker Pro 3.0 supports TCP/IP and IPX networking protocols, and includes instructions for using AppleScript to set up your FileMaker database on the World Wide Web. You can use this capability to set up a database of URLs in a sort of special-interest, roll-your-own Yahoo-type site, or use the Product Brochure template and the FileMaker Events URL suite to open your own retail Web site (see "Get What You Want"). Once you have your catalog on the Web, you can easily modify it by adding or deleting records in the traditionally easy FileMaker way.

Limits

FileMaker Pro is aimed at small and medium-size businesses interested in efficient database solutions, and its programming capabilities are limited compared with those in competitors like ACI US's 4th Dimension (see *Reviews*, March 1996), Blyth's Omnis 7, or Microsoft FoxPro. Claris greatly expanded the scripting command set from previous versions, and it's still possible to work wonders with third-party script extenders such as Power Agent. But even with its improved scripting and third-party options, FileMaker's capabilities can't compare with those of a real programming environment that has a proper debugger. FileMaker Pro isn't as fast as competitors at searching large flat files and offers minimal connections to the venerable, large-company world of SQL databases.

The Last Word

Even these few drawbacks pose no great threat to FileMaker's popularity. FileMaker 3.0's developers aimed squarely at the future rather than offering a backward path to legacy data in large corporate databases; as a result, FileMaker Pro delivers a generous assortment of templates and provides a way to put databases on searchable World Wide Web sites. For most small businesses, a fast way to post catalogs and other company information to the Web is a more significant database capability than improved programmability, a C-language interface for code resources, blinding flat-file search speed, or a SQL interpreter. And with FileMaker's price below $200 and upgrades for $99, even the smallest enterprise can afford to make the investment.

For the growing midrange of Mac database users—neither simple list-keepers nor users who need Oracle-like high-end capabilities—FileMaker Pro 3.0 is an ideal program. It's easy to learn, easy to use, and provides a comprehensive assortment of tools for common database tasks.—CHARLES SEITER

RATING: ★★★★/8.2 **PROS:** Large collection of powerful templates; World Wide Web capabilities; easy to learn and use. **CONS:** Minimal SQL connections; slow flat-file searches; limited programming and scripting. **COMPANY:** Claris (408/727-8227, *info@claris.com*). **COMPANY'S ESTIMATED PRICE:** $199.

PowerCurve 601/120

APPLE'S POWER MAC 7500 HAS A NEW RIVAL

FRESH ON THE HEELS OF ITS POWerful yet inexpensive PowerWave 604 series, Power Computing has introduced a system that beats Apple's business desktop standard—the Power Macintosh 7500/100—in both performance and price, while offering nearly identical capabilities.

You'll save money buying a PowerCurve, but not *tons* of money. A solid professional-level system should include a 1GB hard drive, 16MB of RAM, a 256K cache card, a 4× CD-ROM drive, 2MB of video RAM, and a keyboard. In this configuration, Apple's 7500/100 costs $3059 with a third-party extended keyboard, while Power Computing charges $2777—a savings of $282. Power Computing skimps a little to give you that savings but also adds a couple of features Apple doesn't offer.

ROBERT PERRY

Losses and Gains

Unlike the 7500, the PowerCurve lacks memory interleaving, a design that boosts performance by about 5 percent when two adjacent DIMM slots contain same-capacity, same-speed RAM.

The PowerCurve doesn't offer the 7500's basic video capabilities, either. Most people don't need AV technology, but for those who do, Power Computing offers two solutions: a $150 Diamond Javelin TV card with low-end video-in and TV-tuner capabilities, or an ATI MM card for the high-end multimedia user. Power Computing will charge $300 to $600 for the ATI MM, depending on its configuration.

Some of the initial PowerCurves don't offer a power outlet for your monitor. Although I consider this a minor shortcoming, a number of readers complained that I didn't point this out in my review of the PowerWave 604 series (see *Reviews*, February 1996). Power Computing claims that it's fixing this glitch and that all PowerCurves will offer this "convenience outlet" by spring.

Unlike PowerWaves, PowerCurves offer no option to add NuBus cards. Power Computing's $249 StarGate riser card—which lets you install two NuBus cards and two PCI cards rather than the standard three PCI cards—won't be offered for the PowerCurve.

There's some compensation for these drawbacks, though. Besides the $282 savings, you get a slightly faster system: Macworld Lab tests show that the PowerCurve is 3 percent faster than the Power Mac 7500/100. As is typical of Power Computing systems, adding PCI cards, cache, RAM, and VRAM to the PowerCurve is easy, thanks to a case design that's more accessible than the 7500's.

If you're a recent convert and don't have Macintosh software already, you'll find real value in the PowerCurve's bundled applications, which include ClarisWorks 4.0 and other useful extras. You'll also appreciate the videotape that walks you through your new system.

The low-profile PowerCurve case lets you install two internal drives, and one of the bays can handle removable media, just as in the 7500. Power Computing plans to offer a full-size desktop case with four internal drive bays within a few months.

Power Computing says the PowerCurve's CPU is upgradable, and indeed the 120MHz PowerPC 601 comes on a removable card. But the company doesn't yet have Apple's permission to release a faster CPU card based on the PowerPC 604. I tried using the CPU cards from a PowerWave and a Power Mac 8500, but they don't function in the PowerCurve, so you can't get around the uncertainty by betting on today's alternate solutions.

The Last Word

The PowerCurve 601/120 performs as well as any other PCI Power Mac, and for most buyers there's no clear-cut reason to choose one over the other. Buyers who are new to the Mac will like the bundled software, but for the rest of us, it's a toss-up.—GALEN GRUMAN

RATING: ★★★★/7.5 **PROS:** Fast; moderately priced; accessible case for upgrades; good software bundle. **CONS:** No built-in AV capability; no memory interleaving; cannot use StarGate NuBus bridge. **COMPANY:** Power Computing (512/258-1350, *info@powercc.com*). **DIRECT PRICE:** Base model $1849, as tested $2777.

PowerCurve 601/120—Excellent Speed at a Competitive Price

Best result in test. Longer bars are better. Results are times as fast as a Centris 650 (Centris 650 = 1.0). Products are listed in decreasing order of overall performance.

*With optional 256K cache.

For detailed information on how we tested, see "The Best Mac for the Job," *Macworld*, February 1996, page 110.
—Macworld Lab testing supervised by Mark Hurlow

PowerBook Duo 2300c

A LITTLE PACKAGE, A LOT OF POWER

THE NEWEST MAC SUBNOTEBOOK, the PowerBook Duo 2300c, would be the perfect accoutrement for James Bond's new BMW Z3 Roadster: fast, sophisticated, and curvy. Although it has the same sleek lines as the 200-series Duo, the 2300c offers a larger screen—9.5 inches to the 200's 8.4—and a touchpad that you can double-click to select items. Still, the 2300c's real allure lies not in its more obvious charms, but in the 100MHz PowerPC chip inside. The megahertz rating is admittedly misleading—it's only a 603e, after all—but this 4.8-pound Mac is as fast as a desktop Power Mac 6100/60.

Portability . . . at a Price

Speed and light weight generally come at a price, however, and this Duo is no exception. The model I reviewed sells for $4699 and comes with a 14.4-Kbps Express fax modem, 20MB of RAM, and a 1.1GB hard drive—a powerful system, even with the slow modem. (For $1000 less, you can get a 2300c with 8MB of RAM and a 750MB hard drive.)

That's as expensive as the twice-as-fast Power Mac 8500, and it doesn't include such niceties as spare batteries or docking stations or floppy drives. Of course, you can't balance an 8500 on your knee or tuck it under your arm, but let's face it: this Duo is expensive. A comparable PC subnotebook with a comparable processor (a 75MHz Pentium, 100MHz DX4, or 100MHz 586) runs about $1000 less than the 2300c.

KEVIN CANDLAND

Where Your Money Goes

I enjoyed using the 2300c. Its performance is equal to an entry-level business Macintosh's and about 60 percent faster than that of the 280c, previously the top-performing Duo.

With the right assortment of Apple docking stations, the Duo adapts to almost any environment. A $109 Floppy Adapter lets you attach an external floppy ($139) or CD-ROM drive (about $350 from big companies like Apple and NEC Technologies) and an external input device; a dock (Newer Technology's UltraDock with Ethernet is $510) provides other Mac ports, including those for Ethernet connections and external display. (The 2300c has only a serial port if no dock is attached.)

The 2300c's large, crisp active-matrix screen is easy on the eyes, and the text is quite readable; that extra inch makes a noticeable difference. And even devout mouse users will find the touchpad easy to adjust to and more natural to use than a TrackPad with a separate button. But I'd forgo the Express modem for an external model, even though that would incur the hassle of providing a power supply—14.4 Kbps simply doesn't cut it for Apple Remote Access, and navigating online services or the Internet is merely adequate at that speed.

The Last Word

The Duo 2300c is a fine subnotebook. Given the poor reception of ultralight portables on the PC side, it's nice that Apple remains committed to its subnotebook line despite the small target market. Yes, the price is high, especially when you begin outfitting the system with docks and peripherals. And yes, I wish there were a simple way to add an infrared port like that in the 5300-series PowerBooks.

Overall, though, the 2300c is a decent system that will appeal to Duo devotees; for them, the 2300c is a no-brainer. (And if you own a 200-series Duo, you can replace the motherboard with the 2300c's Copland-ready, 603e-based board for $1300.) The rest of us will probably have the same reaction to the 2300c as we had to the BMW Z3: a longing look before we get back into our Volvos.—GALEN GRUMAN

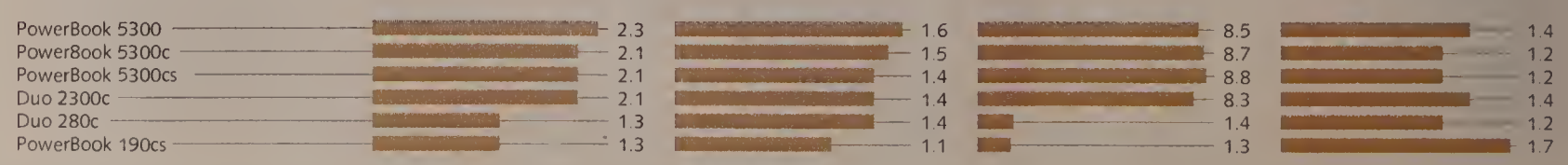
RATING: ★★★/5.9 **PROS:** Entry-level business-Mac performance in a small, lightweight package; good-size, crisp display. **CONS:** Pricey; requires a variety of add-ons to exchange files and work with peripherals. **COMPANY:** Apple Computer (408/996-1010). **COMPANY'S ESTIMATED PRICE:** With 8MB of RAM and 750MB hard drive $3699; with 20MB of RAM, 1.1GB hard drive, and 14.4-Kbps fax modem $4699.

MW LAB

Duo 2300c Holds Its Own against the 5300

Like the 5300, the newest Duo has a PowerPC 603e with a clock speed that triples that of the 68040 chip it replaces. Also like the 5300, the 2300c barely doubles the 280c's performance since factors like hard-drive speed, video display, and bus architecture diminish the 603e's speed.—**Macworld Lab testing supervised by Danny Lee**

Longer bars are better. Results are times as fast as a PowerBook 520c (520c = 1.0). Products listed in decreasing order of performance.



PhotoDeluxe 1.0

"PHOTOSHOP LITE" MAKES QUESTIONABLE COMPROMISES

THE INCREASED POPULARITY OF low-cost color scanners has created the perfect market for an easy-to-use photo-manipulation application. Now, from Adobe, along comes PhotoDeluxe 1.0, a consumer-oriented image-editing package with a kiosk-style interface designed to hold novices' hands, carefully avoiding Photoshop's legendary learning curve. And unlike its professional-class sibling, PhotoDeluxe comes with a wide variety of templates, photo images, and clip art designed with the consumer in mind.

Keeping It Simple

Like Photoshop, PhotoDeluxe offers filters that can distort, sharpen, scale, and creatively manipulate photographic images; PhotoDeluxe lets you use existing Photoshop-compatible plug-ins, too.

PhotoDeluxe can capture documents directly from desktop scanners using its TWAIN acquire module or a Photoshop-compatible plug-in supplied by the scanner manufacturer; it also imports directly from Apple's QuickTake and Kodak's DC40 digital cameras. More important for small-office users, PhotoDeluxe can import and export a wide variety of formats, including Photoshop, GIF, JPEG, TIFF, PICT, EPS, BMP, and PCX—reason enough to warrant a purchase for some users.

At first glance, PhotoDeluxe's interface looks more like a computer game than that of a digital-image–editing application. When you launch PhotoDeluxe, it hides the Finder and fills the screen with its *own* desktop.

If you're familiar with the basics of image editing, you can work on your own, using traditional menus or a tab metaphor. Novices can use the Guided Activities feature to step through the various image-editing functions (see "At Your Service"). If you're familiar with wizards in Microsoft applications you'll be right at home with this step-by-step process, although Adobe makes it a bit more visually appealing.

Colorful icons help you select creative options. You can quickly frame your favorite photo, or easily transform it into a calendar or greeting card. PhotoDeluxe's CD also comes with various templates for creating flyers, signs, and even faux magazine covers.

The Hold Photo feature lets you composite photos, functioning as a sophisticated scrapbook. It can give you seemingly magical powers. Imagine your friends' surprise when Sasquatch crops up in your family portraits!

A Family Resemblance

The PhotoDeluxe design team took an enormous risk in deviating from Apple's rigid user-interface guidelines. For the most part, the colorful, user-friendly style works well, albeit in a cobbled-together manner. But in more than a few situations, PhotoDeluxe's lineage is all too apparent: Photoshop-esque dialog boxes rear their ugly heads when you access many tools. In another application, this sort of code-borrowing wouldn't be as obvious, but these plain-Jane dialog boxes are a sharp contrast to the typically colorful look of PhotoDeluxe's interface. Even more disturbing, the tools still use Photoshop's cryptic methods, complete with terminology sure to confuse users unfamiliar with high-end techniques.

At Your Service Guided Activities walk you through the various steps to edit and manipulate your photo, and incorporate it into a creative project.

PhotoDeluxe's help system is also far from ideal. Unlike integrated systems in competing packages, the help system is a separate application called QuickHelp. Although the content is thorough, it's definitely not consistent with the graphical nature of the rest of the interface. If Adobe is serious about creating a true consumer-level product, it needs to adopt a help system targeted to novice users, such as Apple Guide or balloon help. As an addition to QuickHelp, various hints—called clue cards—pop up during the editing process. Seasoned users can disable the clue cards, either individually or as a group. Still, it's a stopgap measure.

Sacrifice Play

Because PhotoDeluxe is geared to the consumer market, Adobe made a number of design compromises to make it usable on the low-powered, low-memory systems typically found in homes and small offices. Most notably, PhotoDeluxe doesn't offer the ability to work with multiple photos simultaneously.

Despite the sacrifices Adobe has made in the name of simplicity, you still need a CD-ROM drive and a 68040 processor to use PhotoDeluxe. And although the documentation recommends a memory partition of 8MB, test files caused the application to crash at this level. Increasing the memory setting to 12MB solved the problem—too bad most existing consumer Macs don't have that much RAM.

Adding insult to injury, PhotoDeluxe's performance is less than ideal on typical consumer-class systems. Some tools and filters are excruciatingly slow.

The Last Word

PhotoDeluxe isn't picture-perfect, but it *is* a suitable compromise between brute strength and grace. Its suite of tools is easy to use, and its templates are a welcome addition for home users who need a little creative boost.

PhotoDeluxe's low price and fun features make it a logical choice for the home user, but its flaws significantly limit its viability for business use. If you're using Photoshop simply as an import/export tool—and don't need color-separation capabilities or other high-end features—you'll benefit from PhotoDeluxe's lower price.—BLAKE ROBERTS

RATING: ★★★/6.3 **PROS:** Low price; easy to use; lots of templates; imports and exports most popular file formats. **CONS:** Cryptic Photoshop-style dialog boxes for some tools; weak help system; only one document can be active at a time; minimum system requirements too high for target market; sluggish performance. **COMPANY:** Adobe Systems (415/961-4400). **LIST PRICE:** $129.

QuickDraw 3D Accelerators

THE MORE YOU SPEND, THE LESS YOU GET

BOY, ARE WE DISAPPOINTED. WITH QuickDraw 3D accelerator manufacturers promising "rendering speeds as high as 12 times faster" than unaccelerated rendering, we had visions of working exclusively with smooth Gouraud-shaded and texture-mapped 3-D models. But despite the hype, we found much more modest performance gains.

In the Lab

To display a 3-D object, your CPU calculates the object's geometry, converts it to triangles, and then rasterizes each triangle. A 3-D accelerator takes over the rasterization process, freeing your CPU from this time-consuming task. The potential for improvements in performance can be seen using demonstration applications, such as Apple's Gerbils roller-coaster game.

Macworld Lab testing revealed that price and performance are inversely related. The most expensive board, the Yarc Screamer, generated barely noticeable speed gains and actually increased rendering times in our texture-map test. Furthermore, our Mac repeatedly froze during Yarc testing. According to the company, updated drivers and future products will remedy the problem, but for now we can't recommend this board.

The Matrox MGA Millennium PCI ($649; 514/685-2630)—a QuickDraw 3D accelerator and graphics board—provided a moderate 10 to 20 percent speed improvement in our Gouraud-rendering test for QuickDraw acceleration. But the artifact-filled rendering and the board's inability to display a texture map negate its speed advantage. Since all Power Macs support texture mapping, why pay hundreds of dollars for a board that doesn't? Interestingly, combining the Matrox board with Apple's 3-D accelerator board improves rendering quality and restores texture mapping. (For more on the Matrox, watch for *Macworld*'s review of PCI graphics cards in an upcoming issue.)

Apple's QuickDraw 3D Accelerator Card offers the lowest price with the best performance. It offered the smoothest images in the least amount of time. It's the only board we tested that supports transparency, constructive solid geometry (CSG), and alpha channels. Note that, unlike the Matrox and Yarc boards, Apple's board doesn't connect to your monitor. You must still use built-in video or an additional PCI monitor board to drive your monitor. But a single Apple 3-D board can accelerate 3-D rendering to multiple monitors.

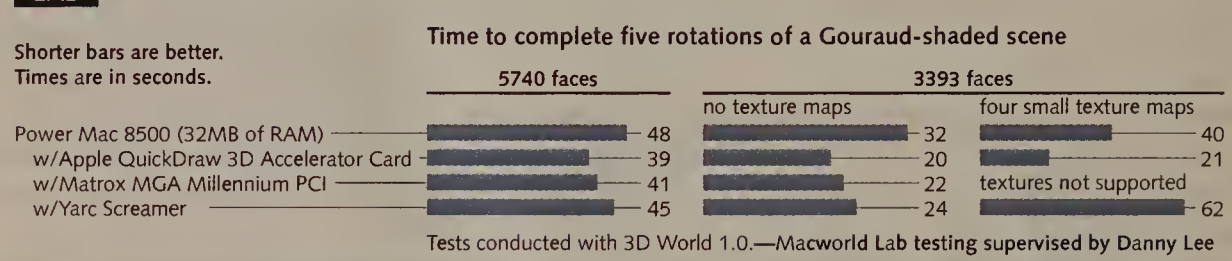
Other Reasons to Wait

3D World 1.0 (from Microspot, 408/253-2000), our benchmark application, was built from the ground up around QuickDraw 3D. Heavy-duty 3-D applications Specular Infini-D 3.1 and Strata Studio Pro 1.75+ have features and data structures that these QuickDraw 3D boards don't accelerate. The same *Macworld* model that rotates smoothly in 3D World exhibits jerky motion in Studio Pro and Infini-D. Also, Studio Pro 1.75+ creates 3DMF files (QuickDraw's native file format) that are more complex than they need to be. (Brian Greenstone's shareware 3DMF Optimizer, available on AOL and on Macworld Online's Web site, optimizes complex 3DMF files for maximum speed and minimum size.)

More-complex 3-D models need the features of an application like Infini-D or Studio Pro. Unfortunately, the more advanced your modeling needs, the less speed improvement 3-D accelerator boards provide. In real-world use, expect to continue working with bounding-box, wire-frame, and flat-shaded renderings. Even Apple's board performs slowly when previewing scenes with more than a few simple models. A 604 PowerPC Mac with QuickDraw 3D software is a better long-term investment. The scheduled spring release of QuickDraw 1.1 should improve 3-D hardware and software performance.

Finally, current 3-D boards don't increase ray-tracing speed or other mathematically demanding tasks. They don't claim to, but you should realize that generating final-quality Phong or ray-traced images for video, film, or print is still a time-consuming process.

Fast on the Draw?



Tests conducted with 3D World 1.0.—Macworld Lab testing supervised by Danny Lee

The Last Word

If you have money to burn, consider selling your current machine and buying a 604-based PCI Mac. The 604 provides fast Gouraud shading and texture mapping, even without an accelerator. After you have a PCI Mac, buy 8MB of RAM to cover QuickDraw 3D's added system overhead. If you have money left over and you use Infini-D 3.1 or Studio Pro 1.75+ for hours at a time, consider Apple's board. QuickDraw 3D acceleration promises to improve the way you work with three dimensions. Save your money until it does.—JIM FEELEY AND DANNY LEE

QuickDraw 3D Accelerator Card

RATING: ★★★/5.0 **PROS:** Supports texture maps; outputs alpha channel. **CONS:** Minor speed gains with major 3-D applications. **COMPANY:** Apple Computer (408/996-1010). **COMPANY'S ESTIMATED PRICE:** $400.

Yarc Screamer

RATING: ★/1.9 **PROS:** Supports texture maps. **CONS:** Slower than no board in some instances; chokes on simple models. **COMPANY:** Yarc Systems (805/499-9444). **LIST PRICE:** $995.

Retrospect 3.0, Retrospect Remote 3.0

LEADING MAC BACKUP PROGRAMS NOW EVEN MORE POWERFUL, EASIER TO USE

DANTZ'S RETROSPECT AND ITS NETwork-aware alter ego, Retrospect Remote, have long been the preferred backup programs in the Mac market. The latest version confirms Retrospect's dominance and leaves the competition in the dust.

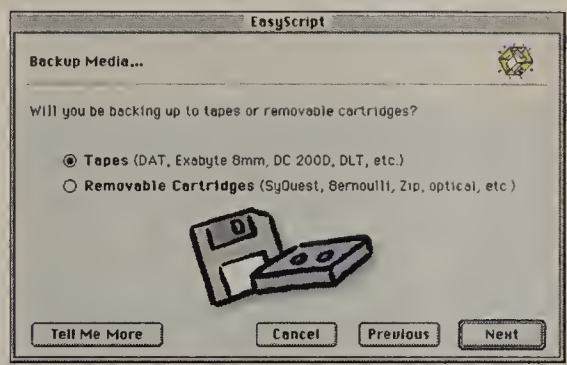
The earlier versions of Retrospect were powerful but difficult to use. Dantz has resolved that shortcoming in version 3.0, which has a new tabbed-folder user interface that I find much easier to navigate; it lets you begin backing up with as few as three mouse-clicks. Dantz has also done away with the jargon that plagued previous versions of the interface and has rewritten the user manual to include more (and better) examples and tips. As before, Retrospect can use virtually any backup media, from tape drives to disks; now it can also use some recordable CD-ROM units for permanent archiving.

Retrospect 3.0 is single-user, while Retrospect Remote 3.0 adds the ability to back up client Macs to a central Mac over a network. (The base Retrospect Remote can handle 10 clients, with additional Remote Packs available in increments of 5, 10, or 50 users.) Both are Power Mac native, optimized for 604-based Power Macs. Macworld Lab tests show a performance increase of 10 to 15 percent over version 2.1. (Of course, the power of the hardware Retrospect is running on determines backup speed.) On my Power Computing Power 100, local performance was excellent; likewise, using Retrospect Remote, I backed up several client machines over a network with ease.

Although Retrospect is superb at backing up Mac-only installations, it still lacks a Windows client. Dantz expects to release one later this year.

Containers and Scripts

For local desktop and networked backup clients, Retrospect 3.0 uses *containers*, which hold the disk volumes to be backed up. For example, say you have two hard disks and a SyQuest drive attached to your Mac. With previous versions of Retrospect (and with all other Mac backup programs), a script would back up the contents of the SyQuest drive only if the inserted cartridge was present when the script was created. When you tell Retrospect 3.0 to back up the entire local desktop container, it automatically backs up the hard disks and whatever cartridge is present. The program is smart enough not to back up floppy disks, mounted network volumes, or CD-ROMs (though you can back those up if you like). You can create folders within a container to organize its contents, a boon for network managers who need to keep track of dozens or hundreds of remote clients. Managers can now organize remote clients into logical folders by department or any other grouping, rather than deal with a single, unwieldy scrolling list.



When We Say Easy . . . With EasyScript, all you need to do is answer a few simple questions; Retrospect produces a complete backup script for you.

Creating backup scripts was difficult in earlier versions; many users simply threw up their hands at the dizzying number of options available. In 3.0, the new EasyScript asks you a few simple questions, then creates a custom script that includes scheduling and media rotation and suggests an offsite backup strategy.

Retrospect's Apple events support is excellent. Scriptwriters can now control virtually every aspect of Retrospect's operations, and Retrospect can trigger scripts. Dantz supplies several sample scripts, including one that works with Ex Machina's Notify to send a message to your pager alerting you that the tape drive contains the wrong tape.

Backup Server

The new Backup Server is reason enough to upgrade to 3.0, especially if you back up many Macs over a network. This special Retrospect script intelligently manages your backup resources and the computers to be backed up.

After checking to see which backup media are available, Backup Server prioritizes the source volumes to be backed up, with the least recently backed-up disk at the top of the queue. It then polls the local machine and the network to see which source disks are available. Retrospect begins backups at the top of the queue, working its way down the list for however long you set Backup Server to operate. Remote users can request to be backed up as soon as possible, and PowerBook users can be backed up automatically on connecting to the network. Previously, sites with many networked clients couldn't always back up all their Macs in the time allotted (overnight, for example); administrators had to split remote clients into groups for backup on successive nights. The new Backup Server simply backs up as many remote clients as it can in the allotted time, then backs up the remaining clients on successive runs until it has backed up all the clients.

Backup Server is especially useful in conjunction with a multiple-tape DAT loader. This combination gives harried backup administrators maximum flexibility; they can insert tapes from several storage sets into the loader and let Backup Server switch automatically between sets as needed, even using blank tapes when necessary for media rotation.

The Last Word

Backup isn't an exciting subject for most people, and progress in this field tends to be slow and incremental. I commend Dantz for its innovation in creating Backup Server, which adds functions no other Mac backup software can match. There's no better program than Retrospect to safeguard your data.—TOM NEGRINO

RATING: ★★★★/8.9 **PROS:** Improved interface; better scripting; innovative Backup Server. **CONS:** No Windows client. **COMPANY:** Dantz Development (510/253-3000, *sales@dantz.com*). **LIST PRICE:** Retrospect $249; Retrospect Remote (ten users) $449.

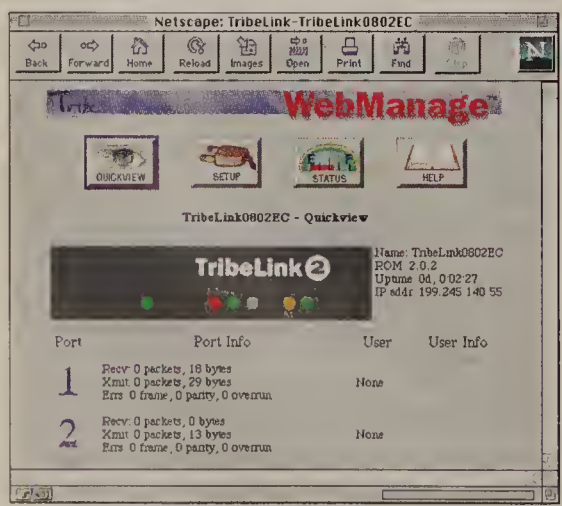
Remote-Access Servers

TWO LOW-END OPTIONS OFFER DIFFERENT STRENGTHS

As a longtime telecommuter who helps others do the same, I was happy to review two low-end remote-access servers for small-office telecommuters like myself. Sonic Systems' QuickStream/3 and Tribe Computer Works' TribeLink2 let remote users connect to an Ethernet network over telephone lines using TCP/IP or AppleTalk over PPP (Point-to-Point Protocol). For a charge, these servers also let local users dial out. Beyond these basic similarities, however, the products differ significantly.

These remote-access servers connect a LAN to the outside world through RS-232 serial ports, to which you can attach an asynchronous communications device —a modem or an ISDN terminal adapter (TA)—running at speeds of up to 115.2 Kbps. The QuickStream/3 has three serial ports, and the TribeLink2, two. The TribeLink2 uses plug-in serial interface boards that optionally support built-in V.34 modems or synchronous devices, such as a leased-line Data Service Unit (DSU), at speeds of up to 128 Kbps.

Setting up either device is simple. You install the management software, set serial-port and modem parameters, register users and passwords, and enable AppleTalk and/or TCP/IP. If you use TCP/IP, you assign the server an IP address and set other IP values, such as subnet mask and gateway address. Both companies take pains to explain TCP/IP, but Tribe's explanation is clearer by far. Overall, however, both user guides are excellent.



Web Approach You can manage the TribeLink2 via the Internet using Netscape Navigator.

You need to install PPP client software, which both companies supply, on the Macs that will be dialing in. Although you can use shareware PPP software, the bundled clients are easier to configure and support server-specific features. Sonic provides an unlimited-user client license, while Tribe includes a two-user license.

Unlimited client connections and a lower cost per port on the base unit ($332 versus $648) are the main advantages of the QuickStream/3 over the TribeLink2.

STEVE HATHAWAY

The QuickStream/3 (top) and the TribeLink2.

But Tribe's product has a slew of features not found on the QuickStream. For example, Tribe's server is a true IP router, so it can connect entire remote LANs to your LAN (using a remote PPP router or another TribeLink); the QuickStream/3 supports only single-user connections. And the TribeLink's synchronous-port option lets you use synchronous DSUs and ISDN TAs, yielding up to 40 percent higher throughput than asynchronous devices deliver. The TribeLink2 also has AppleTalk-zone and -device filtering, static and dynamic (RIP) IP routing, and a script language for customizing connections with non-Mac remote hosts.

But its most novel feature is WebManage, a built-in World Wide Web server that lets you administer the unit from any computer with Netscape Navigator. WebManage includes built-in documentation. A QuickView page summarizes port status and throughput statistics, and a Status page displays detailed status information, including TCP/IP routing tables, active sockets, and diagnostic logs.

Put to the Test

I connected Motorola BitSurfrPro ISDN TAs to each port. Remote Macs dialed in at 128 Kbps and simultaneously transferred 10MB incompressible JPEG image files. With the QuickStream/3's three ports operating at full speed, throughput dropped well below the maximum 115.2 Kbps—to less than 90 Kbps. The TribeLink2 suffered no such slowdown.

When difficulties arose, Tribe's server provided better problem-solving aids than Sonic's. The QuickStream/3 generates no diagnostic logs—not even error messages—making connection failures very difficult to track down. The QuickStream/3 reported simple problems, such as a password mismatch, with an ambiguous "Connection Failed, –1" message. In contrast, the TribeLink2 provides detailed logging on both ends of the connection, itemizing every step of the process and clearly noting the cause of failures. Unlike the QuickStream/3, the TribeLink2 can disconnect or give the end user a warning when a connection has been left up too long.

The Last Word

If you want to serve a small number of individual remote users and can live with the QuickStream/3's limitations, its lower cost per port may be a reasonable trade-off for features and usability. But if you plan to interconnect branch-office LANs, need true IP routing, or lack a remote technical staff, consider the usability, expandability, and speed of the TribeLink2. Both solutions are welcome additions to the network manager's stable of Mac-savvy products.—MEL BECKMAN

QuickStream/3

RATING: ★★★/6.3 **PROS:** Low price per port. **CONS:** No diagnostic logs or messages; performance lags with three heavy users. **COMPANY:** Sonic Systems (408/736-1900, *sales@sonicsys.com*). **LIST PRICE:** $995; dial-out option $249.

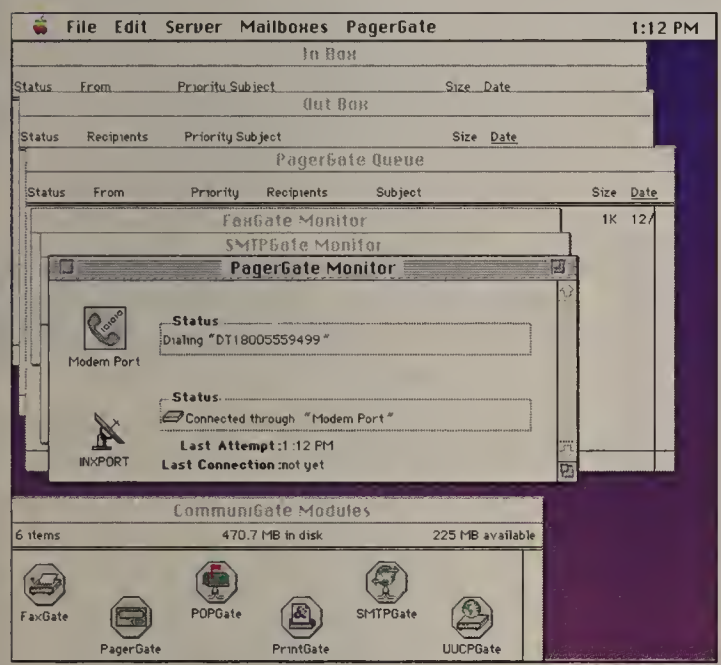
TribeLink2

RATING: ★★★★/8.2 **PROS:** True IP routing; LAN-to-LAN connections; Web-based administration. **CONS:** High price per port. **COMPANY:** Tribe Computer Works (510/814-3900, *sales@tribe.com*). **LIST PRICE:** $1295; dial-out option $200; additional PPP client licenses $145 for 10 users to $1495 for 500.

CommuniGate

INTEGRATED MESSAGING FOR MACS

MACINTOSH USERS TYPICALLY meld together a motley crew of messaging applications—each with a different user interface, address database, and content capability—to send E-mail, faxes, print jobs, and electronic pages. Then the applications won't interoperate unless you spend considerable effort setting up gateways between them. Stalker's CommuniGate software addresses this problem by combining modular gateways with a cohesive client that gives you all this messaging functionality from one interface.



Deliver Pages and Faxes CommuniGate's extensible messaging architecture includes gateways for paging and faxing from any computer with the CommuniGate client.

The CommuniGate server software runs in the background as an extension on a local AppleTalk-connected Mac, which must be running all the time. The client software originates and receives messages. The server includes a local-mail gateway, and there are six optional gateways—for POP, SMTP, and UUCP Internet mail protocols, as well as for faxing, printing, and paging.

The CommuniGate software and documentation come on one disk. The documentation is well organized, by function, as separate SimpleText files; but it has no index and suffers from a total lack of illustrations, which makes setup and operating procedures tedious to follow and difficult to perform correctly.

The Client

The client is nicely Mac-like, letting you compose messages as styled text, with embedded graphics and sounds. Local recipients using CommuniGator receive messages with multimedia additions intact, but messages that you send via one of the Internet gateways lose all multimedia attributes, because the gateways don't support Multipurpose Internet Mail Extensions (MIME) for multimedia E-mail. Similarly, the software automatically converts attachments to the Mac-standard BinHex format, which is fine if the receiving machine is a Macintosh, but not so fine for non-Mac addressees. CommuniGate doesn't support the Internet-standard enclosure encoding called UUCode, so non-Mac correspondents will find your attachments inconvenient, if not impossible, to read. (For more on sending E-mail enclosures, see *NetSmart*, elsewhere in this issue.)

The client supports most essential messaging functions: multiple recipients, groups, blind carbon copies, forwarding, and redirecting. Each user can create multiple local mailboxes and file incoming mail. A few valuable functions are missing, however: the ability to filter messages based on content; set priorities to make urgent messages more visible; automate replies; and sort related messages by attributes such as date, address, or subject.

Each user can have several address books, as well as access to shared ones on the server. Retrieving addresses is not as easy as it could be: you open the address book and select the recipients, then click on the To button to address your outgoing message. (Claris Emailer uses a better approach: type a few letters of the recipient's name in the To field, and the closest match appears automatically.)

Heaven's Gateway

The optional gateways operate in demo mode until you buy a module and obtain a keycode that enables full functionality. You can send messages to any of the modules directly, using an address that provides a destination pager ID or phone number, the optional service name, and the gateway (*12345%Airnote@PagerGate*, for example). An intergateway routing function transfers messages between gateways, so you can route incoming E-mail to a pager or incoming faxes to a printer. Users can fax from any application via a Chooser extension.

Several miscellaneous features top off CommuniGate's eclectic capabilities. You can create custom fax cover sheets; guest users can read their mail from another user's Mac; and the server stores standard attachment files, making it easy to send boilerplate documents, such as product specs.

Running native on a Power Mac, CommuniGate is fast, both as a server and as a client. Excellent message logging and diagnostics simplify identifying problems.

Pricing has a complicated, à la carte structure. The server and local E-mail gateway with 5 client licenses is free. Each additional 25 licenses cost $200; an unlimited-user license is $600. Each gateway costs $100 and runs only on one server, so running multiple servers (for example, with branch offices) requires purchasing multiple copies.

The Last Word

CommuniGate is priced cheaply enough (free is cheap indeed) that small workgroups can easily afford it, yet its extensible client-server architecture makes it flexible and robust enough to use even in large corporate settings. Stalker has at least one additional gateway module, for voice mail, in the works. If you need a wide range of messaging capabilities, and can live with CommuniGate's limitations, this product is a winner.—MEL BECKMAN

RATING: ★★★★/8.0 **PROS:** Well-integrated modules; multimedia message contents; Internet, fax, print, and pager gateways; intergateway routing; excellent message logging. **CONS:** Incomplete documentation; no message filtering; no MIME or UUCode support; unsophisticated messaging and addressing features. **COMPANY:** Stalker Software (415/383-7164, *sales@stalker.com*). **LIST PRICE:** Free for 5 users; 25 users $200; unlimited users $600; gateway modules $100 each.

Business Card Scanners

SCANNERS DON'T DELIVER ON PROMISE

MY DESK DRAWERS ARE CONstantly littered with business cards, so I was thrilled when I got to review three scanners—the VIP Scan, Biz Card Reader (BCR), and Biz Card Manager—that would let me transfer card information to my Mac automatically. After trying them for a few weeks, though, I've decided to stick with the old-fashioned method of entering data manually.

Almost Identical

With the exception of a few cosmetic differences and the lack of an on/off switch on the Umax BCR, all three scanners are identical inside and out. An AC adapter supplies the power, and a green indicator light on top of each scanner glows when the scanner is on. One particularly annoying feature is the nonstandard SCSI connector, which forces you to use a special (supplied) cable to connect the scanner to your Macintosh. The other end of the cable sports a 25-pin plug that is incompatible with most other SCSI devices. Even with a 25-to-50-pin adapter—and only the BCR ships with one—the scanner has to go at the end of the chain. I also ran into problems getting my Power Macintosh 7500 to work consistently with any of the scanners. Even after I disconnected my only other SCSI device, the scanner software would sometimes recognize the scanner only after I cycled the power off and on.

All the business-card readers come with specialized database applications that resemble contact managers, with fields for names, addresses, phone numbers, and other demographic information. (Two of the scanners—La Cie's VIP Scan and the BCR—even use the same proprietary scanner software.) All three programs let you print and export contact information in a variety of formats. The BCR and the VIP Scan also support automatic data transfer to Now Contact or Symantec's ACT using AppleScript, and La Cie's scanner comes bundled with a copy of Now Contact. (The VIP Scan I tested came with version 3.0; La Cie plans to ship version 3.5 when the current inventory runs out.)

ERIC HARGER

Three business card scanners: the Biz Card Reader from Umax Technologies (left), the Biz Card Manager from Electronic Document Technology (center), and the VIP Scan from La Cie (right).

To scan a card, you place it facedown on top of the scanner and click on a button; you can also set the VIP Scan and BCR to scan automatically as soon as you insert a card. It takes only a few seconds for the card to pass through the scanner and the optical character recognition (OCR) engine to kick in. (All three scanners also support a deferred-recognition mode that lets you scan a series of cards and batch-process them later, but you can still load only one card at a time.)

The OCR software tries to interpret each item of text and insert it into the correct field in the database. Leftover information that can't be classified gets tossed into a separate notes field. After tweaking the scanners' settings for best performance, I tested them with an eclectic assortment of business cards. Not surprisingly, accuracy was highest on cards with plain, clearly separated text. Cards with stylized fonts or with company logos superimposed over text didn't fare nearly as well, and none of the scanners made any sense of a card with yellow text on a dark blue background.

As expected, the BCR and the VIP Scan performed almost identically, taking an average of about 30 seconds to scan and interpret each card. The Biz Card Manager was a little faster, averaging about 26 seconds per card, but it was slightly less accurate than the other two. All three scanners made at least a few mistakes on almost every business card, though, forcing me to proofread the information carefully.

The Last Word

Given the endless variety of card styles in circulation, it's amazing that these scanners work at all. But in the business world, where a single missing letter or misplaced digit can spell disaster, only perfection will do. In the time that it takes to scan a card and make any necessary corrections, you can usually type the information yourself. Without significant improvements to the scanners' optical character recognition software, I can't recommend them.—FRANKLIN TESSLER

Biz Card Manager

RATING: ★★/3.7 **PROS:** Slightly faster than the other card scanners. **CONS:** More expensive; no automatic scanning or data transfer to contact managers; makes more errors. **COMPANY:** Electronic Document Technology (408/733-7309, *ops@edti.com*). **LIST PRICE:** $369.

Biz Card Reader

RATING: ★★/3.7 **PROS:** Scans automatically; exports data to contact managers. **CONS:** Nonstandard SCSI connector; no on/off switch. **COMPANY:** Umax Technologies (510/651-8883). **LIST PRICE:** $245.

VIP Scan

RATING: ★★/3.8 **PROS:** Scans automatically; exports data to contact managers; includes Now Contact. **CONS:** Nonstandard SCSI connector. **COMPANY:** La Cie (503/520-9000). **LIST PRICE:** $199.

Supra has a better way to go global.

SUPRA. The high-performance modem with the right price.

◆ The choice is clear—Supra offers a lot more modem for your money. The new SupraExpress™ 288 delivers all the performance you need to access the Internet, transfer large files and fax from your desktop—at a price you can afford. What's more, Supra offers dependable solutions designed exclusively for the Mac, superior engineering, and top-rated software.

◆ Included with all Supra modems, FAXcilitate fax software makes faxing quick and easy. One-step access to a powerful fax menu makes FAXcilitate more intuitive than other fax software. Plus, FAXcilitate now offers PowerMac native operation and true gray-scale faxing.

◆ So, whether you want to send a fax around the world or explore the Internet, Supra has a better way to go global.

Features & Price Comparison	SupraFAXModem288	SupraExpress288	Global Platinum
28,800 bps(V.34) max data speed	■	■	■
115,200 bps max throughput	■	■	■
Up to 14,400 bps fax capability	■	■	■
Voice/fax line sharing	■		■
Data comm software	Microphone LT	Microphone LT	Shareware
Serial port enhancer software	■	■	■
CompuServe® Information Manager	■	■	■
Caller ID	■		
5-Year limited warranty	■	■	■
Durable aluminum case	■		
Flash ROM	■		■
Alpha-numeric display	■		
Fax software	FAXcilitate	FAXcilitate Lite	GlobalFax
One-step access to FAX menu	■	■	
Apple Script support	■	■	
Estimated Retail Price	**$229**	**$169**	***$209**

SupraFAXModem™ 288

SupraExpress 288

Accelerated for Power Macintosh

DIAMOND MULTIMEDIA
SUPRA COMMUNICATIONS DIVISION

For more information or the dealer nearest you, call 1-800-934-8772.

24-Hour Fax-Back: 541-967-0072 ◆ Internet: http://www.supra.com

SupraExpress™ 288 and SupraFAXModem™ 288 are registered trademarks of Diamond Multimedia/Supra Communications Division, 312 SE Stonemill Drive, Suite 150, Vancouver, WA 98684. All other trademarks are the property of their respective owners. *Estimated mail order price Dec/Jan '96 MacWarehouse

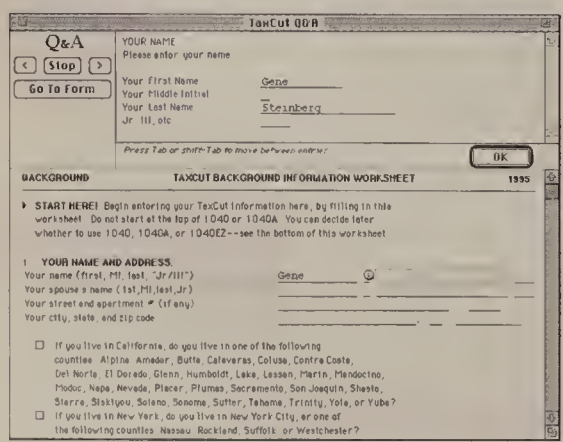
Circle 83 on reader service card

Tax-Prep Programs

THREE PROGRAMS UNTANGLE KNOTTY TAX LAWS

EVERY YEAR, TAXPAYERS' DREAMS of single-page tax returns that take just minutes to complete seem less and less likely to come true. This year is no exception; you can expect more forms and regulations than ever. If you've decided it's time to switch from the pencil-and-calculator method to software that does the organizing and calculating for you, you have three programs to choose from. They range from the sophisticated MacInTax Deluxe—a CD-ROM complete with built-in help and QuickTime videos—to the practical, no-nonsense Kiplinger TaxCut to the minimalist Personal Tax Edge. (The head-start versions reviewed here let you plan and preview your return, but only the final versions—which aren't generally available until late January—contain the complete set of IRS-approved forms required for filing.)

Despite their divergent interfaces, the programs share some basic features. If you know your way around a tax return, you can enter information directly into electronic tax forms. Each program can also act as a virtual tax preparer, interviewing you and recording the information on worksheets and on the actual return. All the programs check returns for errors and missing information, flag potential trouble spots that could attract an auditor's attention, and offer financial-planning advice. If you need help using the programs, telephone support is available (though tax advice is not). When you're finished, you can either print your completed return and mail it yourself or send it to the publisher of the program for electronic filing.



Simple Elegance Kiplinger TaxCut has a handy question-and-answer feature that makes completing your return a breeze.

All three companies have Web sites that may help you decide on a program or get assistance once you've started preparing your taxes. For more information on TaxCut, point your browser at *http://www.conductor.com/*; for Personal Tax Edge, go to *http://www.parsonstech.com/*; and for MacInTax, see *http://www.intuit.com/turbotax*.

A Face Only a DOS User Could Love Parsons' Personal Tax Edge comes across as a quick Mac port from the DOS platform.

Kiplinger TaxCut

Kiplinger TaxCut from Block Financial Software may lack the extensive built-in help resources of MacInTax Deluxe, but its interview process is first-rate. For example, it helps you figure out if you can take a home-office deduction, then holds your hand as you calculate how much you can deduct.

Although the program isn't Power Mac native, TaxCut is speedy enough that you won't be disappointed; however, when I used it on my 80MB Power Mac 9500/120 (with Virtual Memory off) I got a low-memory message and had to allocate a larger partition. More frustrating is the lack of state modules: although you can get Windows versions for more than half the states that tax income, Macintosh users are limited to modules for California and New York. And TaxCut's written documentation is bare-bones; you'll have to rely on the built-in help if you have a problem.

Personal Tax Edge

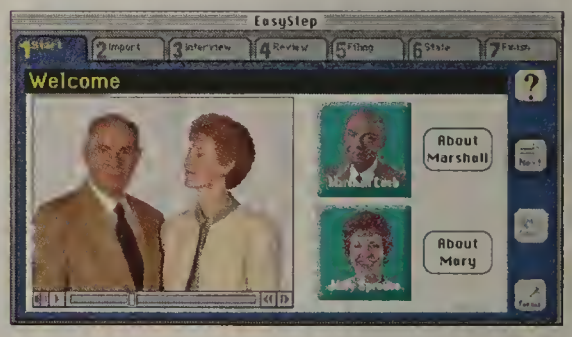
Parsons Technology's Personal Tax Edge has "fast PC port" written all over it, with unsophisticated graphics and blocky text that bring to mind a low-cost DOS program. *Minimalist* charitably describes the built-in help, and the interview feature isn't terribly comprehensive—it asks some basic questions, then presents you with a tax form and leaves you to complete the form on your own.

Although the interface may put off some users, Personal Tax Edge produces high-quality printed forms comparable to those of the more expensive programs. If your tax returns are simple or you're a master of tax preparation, the lack of extensive built-in assistance won't be a drawback. And Parsons offers a state-tax package for every state that collects income tax, something even TaxCut has yet to offer.

MacInTax Deluxe

MacInTax Deluxe, currently the only CD-ROM–based tax program for the Mac, has enough QuickTime videos and built-in documentation to guide you easily through the complexities of tax forms. (You can also get the guts of the program, minus the extensive built-in help, on disk.) State modules are available for all states that collect taxes.

The MacInTax interview process is a marvel of simplicity. The program presents each question in clear language, and you can click on an underlined phrase to get additional information on that topic. QuickTime videos complement some questions; you can also click on an icon within the program to get help from IRS tax publications or the two built-in books offered with the program. MacInTax can even calculate your deduction in different ways so you can choose the method that yields the biggest tax break.



A Tax Library at Your Fingertips MacInTax Deluxe offers QuickTime movies with useful tax tips as part of its Navigator interview feature.

MacInTax is loaded with thoughtful

features; for example, it offers to save your work whenever you move from one topic to another. The only negatives are that previous final versions have shipped late and with bugs, and customer service tends to be scarce as April 15 approaches.

The Last Word

Any of these programs will help you prepare a clean, accurate tax return. If your tax picture is relatively complicated, though, you need software that guides you through the rough spots simply and intelligently. Parsons' Personal Tax Edge yields respectable results but doesn't do much hand-holding along the way; Kiplinger TaxCut, with its easy-to-use interface and elegant organization, has much to offer but lacks a complete set of state versions.

Of the three programs, MacInTax Deluxe is the clear winner; it not only guides you effortlessly through the tax-return minefield but gives you a wealth of helpful advice on financial planning. When it's time to wade through this year's jumble of forms and regulations, that's the program I'll be using.—GENE STEINBERG

Kiplinger TaxCut

RATING: ★★★★/7.1 **PROS:** Easy-to-use interview feature; well-organized built-in help. **CONS:** Minor memory problems with Power Macs; state versions only for California and New York. **COMPANY:** Block Financial Software (816/751-6000). **LIST PRICE:** $39.95; state modules $24.95.

MacInTax Deluxe

RATING: ★★★★/8.6 **PROS:** Powerful built-in help; simple yet comprehensive interview process; informative QuickTime video help; modules for all states. **CONS:** History of customer-support problems and bugs; somewhat memory-intensive. **COMPANY:** Intuit (520/295-3110). **LIST PRICE:** $49.95; state modules $25.

Personal Tax Edge

RATING: ★★★/5.2 **PROS:** Easy to use; high-quality printed forms; modules for all states. **CONS:** DOS-inspired interface; minimal built-in help; memory-hungry. **COMPANY:** Parsons Technology (319/395-9626). **LIST PRICE:** $19; state modules $19.

Mediagnügen 1.0.1, ProView 1.1

BARE-BONES TOOLS FOR SIMPLE MULTIMEDIA PRESENTATIONS

TAKE THE CONCEPT OF MULTIMEDIA authoring, strip it to its essence, and you're left with ProView and Mediagnügen. These no-frills tools let you combine graphics, sound, and QuickTime movies into basic interactive presentations, but they lack many of the features needed to produce polished, professional results.

ProView 1.1

ProView lets you create and freely distribute simple, slide-show–style presentations that are either self-running or interactive. It takes almost no time to learn; creating new pages, adding media elements, and creating button links to other pages are simple and intuitive.

Unfortunately, a sparse feature set seriously limits ProView's usefulness. The program supports only PICT and JPEG graphics; you're limited to a palette of 11 colors; you can't import text from other programs; and ProView lacks drawing tools entirely. While the button links make it easy to navigate a presentation, no transitional effects are available; ProView simply cuts abruptly from page to page. (E-magine promises to fix many of these problems in the next release.)

Finally, ProView is prone to lockups and crashes when individual pages contain multiple PICT images. ProView documents with embedded QuickTime movies also cause the application to crash.

Mediagnügen 1.0.1

Mediagnügen is even more limited than ProView. Although the documentation says the program can be used for electronic presentations and slide shows, Mediagnügen is essentially just a multimedia browser. It lets you load and view any combination of graphics and QuickTime movies; you can also import sounds and listen to them within the browser.

One of Mediagnügen's functions is to create catalogs of up to 13,000 files. You can catalog a CD-ROM of clip art, for example, then view thumbnails of the images without rereading each one from the CD.

Mediagnügen is riddled with problems, however. The program supports PICT and JPEG images, but not TIFF, GIF, EPS, or Photo CD files; browsing tools are extremely limited; you can sort items only by name, not by size or type; and you can't add notes to images. (Gnügen says a future version will support additional file formats and search criteria.) The main viewing interface is awkward, and the documentation consists of a single sheet of paper. Even worse, in a catalog you can't add or remove an individual file, nor can you shift-click multiple images to copy them to an archive.

On Stage Buttons below the Mediagnügen "stage" let you move from image to image, copy images to a new catalog, or run a slide show.

The Last Word

While ProView is a cheap, simple way to create a self-contained, self-running app, Mediagnügen is almost useless as a browser; it lets you view and copy image collections, but doesn't give you the tools to organize and sort them. Even at under $30, it isn't all that useful.—JOSEPH SCHORR

ProView 1.1

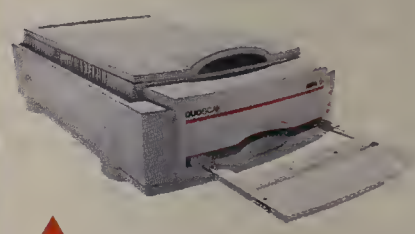
RATING: ★★/4.0 **PROS:** Simple to use; includes viewer application. **CONS:** Can't import text; no drawing tools; supports few file formats and colors; occasionally unstable. **COMPANY:** E-magine (818/881-4757, *e-magine@panix.com*). **LIST PRICE:** $69.95.

Mediagnügen 1.0.1

RATING: ★★/3.5 **PROS:** Can put 13,000 images in each catalog. **CONS:** Supports only PICT and JPEG formats; can't sort images by size, type, or keyword; can't add or remove individual files; poor interface design. **COMPANY:** Gnügen Software (303/682-5380). **LIST PRICE:** $29.98.

What the heck is this?

A DuoScan,® they tell you. A desktop scanner with two loading areas? A two-bed scanner? Yes, they say. So you can load transparencies while you scan reflective art. And with a dedicated bed for each, you can get better scans from both. Then you look at the dynamic range. And you look at the resolution. And the speed. And then you know exactly what it is. It's something that's going to make your life a lot easier.



The new Agfa DuoScan with TwinPlate™ Technology. Exclusive dual scanning bed design for increased accuracy and productivity. 36-bit scanning of up to legal size for reflective, letter size for transmissive. Dynamic range: 3.3D. Resolution: 2000 X 1000 ppi. Line time: 7.7 ms/line, full color. Previews in under 10 seconds. Batch slide holders optional.

Comes complete with full Adobe Photoshop™ 3.0, Agfa FotoTune™ color management and FotoFlavor™ color correction software.

For the Agfa DuoScan dealer nearest you, call 1-800-685-4271, ext. 5643. In Canada, please call 1-800-268-1331, ext. 4032.

www.agfahome.com

Agfa Division, Bayer Corporation, 100 Challenger Rd., Ridgefield Park, NJ 07660.

The following AgfaType fonts are used in this ad. Frutiger, Sabon and ITC Zapf Dingbats

AGFA and the Agfa rhombus are registered trademarks of Agfa-Gevaert AG. DuoScan is a registered trademark and TwinPlate Technology, FotoTune, FotoFlavor and AgfaType are trademarks of Agfa-Gevaert N.V. Photoshop is a trademark of Adobe Systems Inc., which may be registered in some jurisdictions.

Circle 158 on reader service card

WHAT DO YOU SEE?

AGFA Agfa

The complete picture.

KPT Final Effects 3.0

SUPERB EFFECTS LIBRARY FOR ADOBE AFTER EFFECTS

METATOOLS' KPT FINAL EFFECTS 3.0 is a library of plug-in modules that adds 28 film-quality effects to Adobe After Effects, one of the digital-video world's favorite effects programs (see *Reviews*, March 1996). Final Effects taps directly into After Effects' video-altering engine and adds new effects and transitions to After Effects' Filter menu.

The Final Effects library breaks down into eight categories: distortion, channel, image control, light, particle, perspective, stylize, and transition. The seven distortion filters let you, among other things, slant movies or images, create slanted drop shadows, cut an image into animated squares, and create a vortex effect. Several image-control and channel filters make it easier to create image masks; they also let you composite two images in a single layer, something After Effects can't do on its own.

Final Effects also adds several new transitions, including a gorgeous 3-D page peel (see "Video with a Peel"), two types of wipes, and Twister, in which an image twists as if it's being wrung out. New filters include Sphere, which projects an image onto a sphere whose surface properties and illumination you control; Scatterize, which creates an exploding image; and Kaleida, which reflects an image for a kaleidoscope effect.

Video with a Peel The Page Turn filter creates gorgeous page-peel transitions. As with all Final Effects plug-ins, you can fine-tune the transitions' characteristics in After Effects' Effect Controls window.

In the particle system, nine filters create everything from starbursts and bubbles to rain and flames. You have full control over the particles' attributes: how often new particles spew from a source, their size, when they disappear, how their colors change over time, and more.

Unlike some third-party effects plug-ins, the Final Effects filters are tightly integrated into After Effects. You can animate the effects over time by creating keyframes in After Effects' Timeline window; with the Rain particle generator, for example, you can create a gentle drizzle that gradually turns into a windblown downpour. You adjust filter settings in After Effects' Timeline window or its new Effect Controls window.

The plug-ins' rendering quality won't disappoint After Effects veterans. Clips rendered with Final Effects' 3-D filters have a particularly rich appearance. And while some plug-in collections include bizarre, gimmicky transitions you'd rarely use, the Final Effects library contains nothing but genuinely useful effects.

The Last Word At $695, Final Effects is on the pricey side—the base version of After Effects 3.0 itself sells for only a bit more. But the price is justified, given the fact that Final Effects delivers results normally associated with seven-figure video workstations. If you work extensively in After Effects, your system isn't complete without Final Effects.—JIM HEID

RATING: ★★★★/8.9 **PROS:** Excellent rendering quality; tightly integrated into After Effects 3.0; useful selection of effects. **CONS:** Expensive. **COMPANY:** MetaTools (805/566-6200, *metasales@aol.com*). **LIST PRICE:** $695.

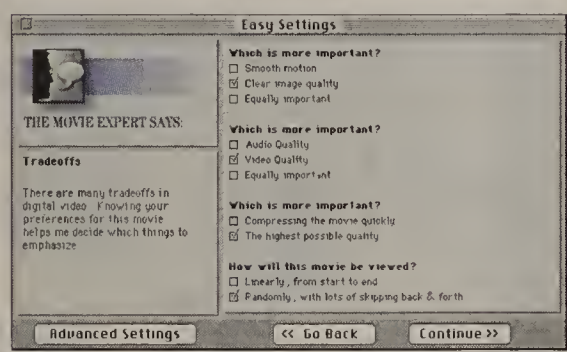
Movie Cleaner Pro 1.1.1

QUICKTIME-COMPRESSION UTILITY FOR CRISP CD-ROM MOVIES

ONE OF THE MOST IMPORTANT steps in producing QuickTime movies for CD-ROM is compressing them so they'll play smoothly from a relatively slow storage device. Unfortunately, a movie that starts out crisp and clear can look chunky and pixelated after compression. Multimedia developers use blurring, cropping, and scaling to minimize artifacts, but these tricks require a shelf full of software and dozens of steps.

Software developers are coming to the rescue with utilities that streamline compression. Two such products are Adobe's CD-ROM Movie Maker plug-in for Adobe Premiere (see *Reviews*, March 1996) and Terran Interactive's Movie Cleaner Pro, a stand-alone application. While Movie Cleaner combines essential compression features with an appealing interface, it falls short of the Premiere plug-in in some areas.

Like CD-ROM Movie Maker, Movie Cleaner has a blur option that softens edges and de-emphasizes video noise for cleaner compression. But Movie Maker's additional blurring options can yield better results with movies containing lots of video noise.



Make Me a Movie The Movie Expert feature asks you about the movie and compresses accordingly.

Both utilities can attach a custom color palette (used on computers with 256-color video circuitry) to a movie, but CD-ROM Movie Maker can actually generate the palette's colors; with Movie Cleaner, you create the custom palette in a separate program, then import it into Movie Cleaner.

CD-ROM Movie Maker also has better support for keyframes. Although Movie Cleaner lets you specify the number of keyframes per second, Premiere also lets you control where they appear—a distinct advantage if you're creating interactive movies whose starting places depend on a user's actions. Movie Cleaner also lacks a data-rate analysis window that predicts how a movie will tax a CD-ROM drive.

Movie Cleaner Pro does have its strengths, though. A unique filter eliminates the annoying dancing pixels that often appear in otherwise static areas of a shot, but the program's primary advantage is a highly interactive operating style. For example, you can pause a compression at any time and compare the before and after versions using a split-screen window. Terran Interactive also has a good customer-service record and makes updates and a shareware version available on its Web site (*http://www.terran-int.com*).

The Last Word If you're a seasoned compressionist who lives in Premiere 4.2, you may not need this product. But if you use another video-editing package, are new to compression, or simply want to add to your toolbox, I recommend Movie Cleaner Pro.—JIM HEID

RATING: ★★★/6.5 **PROS:** Excellent interface; supports batch compression; unique filter options; reasonably priced. **CONS:** Few blurring options; limited control over keyframes; no data-rate analysis window; can't generate custom palettes. **COMPANY:** Terran Interactive (408/353-8859, *info@terran-int.com*). **LIST PRICE:** $129

Hitachi StudioPad

GRAPHICS TABLET FOR TIGHT QUARTERS

PRESSURE-SENSITIVE GRAPHICS tablets are the best way to draw and paint on the Mac, but they can be bulky. If you're cramped for desk space, the Hitachi StudioPad offers a compact solution. The 7.5-by-6.6-inch StudioPad takes up less space than the average mouse pad. It includes a cordless pressure-sensitive stylus and 15 user-programmable buttons above its 4-by-5-inch work area. It's similar in size and shape to the Wacom ArtPad, a smaller version of the ArtZ II (see *Reviews*, December 1995).

Installation is simple: the StudioPad connects to your Mac's ADB port; a pass-through plug lets you attach the pad between other devices, such as the keyboard and mouse. The sturdy pad has nonskid feet, but it's so light you'll probably keep it in your hand as you draw. A plastic overlay provides a smooth drawing surface and lets you secure small images for tracing.

The battery-powered cordless stylus, with one user-definable barrel button, is about the size and weight of an expensive ballpoint pen. A pocket clip completes the metaphor. To extend battery life, the stylus goes to sleep after five inactive minutes.

GIBSON

The pen's internal batteries make it bulkier than the pencil-thin Wacom stylus, but the weight difference is minimal. The Hitachi stylus tip offers greater movement than the stiffer Wacom tip, providing noticeable—and useful—feedback of the pressure you're exerting on the tablet. I found the stylus responsive, and its rounded, penlike contours fit well in my hand. However, the pocket clip makes it entirely too easy for you to put it in your pocket accidentally and wander off with it.

The StudioPad's software is not as refined as the Wacom tablet's. For example, with the StudioPad, you adjust pressure sensitivity numerically, without helpful graphical controls. But overall, the software is easy to use and works well.

Programming the StudioPad's function buttons is especially easy. You simply click on radio buttons for function keys—control, ⌘, shift, option, or caps lock—and type a keystroke in a dialog box for each pad button. Unfortunately, you're limited to keyboard sequences; the StudioPad does not accept macros created with third-party utilities, like CE Software's QuicKeys or Tempo II from Affinity Microsystems.

Can you draw with a tablet this small? Amazingly, yes. Even though I'm used to having more room, I adapted easily. Your own work habits and preferences dictate which size tablet is best for you. Test driving before purchase is always a good idea.

The Last Word The StudioPad is a well-designed graphics tablet with excellent, pressure-sensitive operation. It's a good choice for illustrators with cluttered desks and artists working in cramped garrets.

—CARLOS DOMINGO MARTINEZ

RATING: ★★★★/7.5 **PROS:** Small size; excellent pressure sensitivity. **CONS:** Tablet buttons do not accept macros from third-party utilities. **COMPANY:** Hitachi Digital Graphics (408/747-0777). **LIST PRICE:** $199.99.

MailKeeper 1.0.2

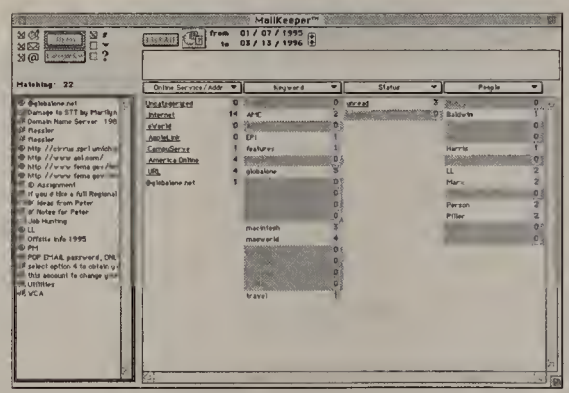
QUICK ONLINE INFORMATION DATABASE

SOME DAYS, IT'S A CHALLENGE just to read all my E-mail messages, let alone remember what's in them. MailKeeper helps me make sense of the seemingly endless data flow.

Rather than acting as a simple E-mail repository, as its name implies, MailKeeper is actually a specialized database designed to consolidate and organize a variety of data, including electronic-mail addresses, free-form notes, text clippings, and of course, E-mail messages. MailKeeper recognizes Internet URLs (Uniform Resource Locators), as well as America Online, AppleLink, CompuServe, eWorld, and Internet mail addresses. Currently there is no way to make MailKeeper aware of other address formats, and you still need a separate application to retrieve your E-mail.

Saving information to MailKeeper is a simple proposition. When you come across text that you want to save, you highlight it, copy the selection to the Clipboard, and enter a hot-key sequence to send the item to MailKeeper; MailKeeper must be running for the transfer to occur.

You assign archived items to one or more content categories, either as you import them or at any other time. The program comes with eight predefined categories, but you can add as many as you need. MailKeeper names items automatically or lets you append a name to the text before you import it. The subject field becomes the item name for E-mail in a format that MailKeeper recognizes.



Information Categories As you click on categories, MailKeeper displays matching database entries.

MailKeeper displays four category columns at one time (see "Information Categories"). You can customize the column headers and move categories from one column to another by dragging. To search for stored items, click on the categories that you're searching in and MailKeeper displays a list of matching entries.

A feature called Guided Information Access automatically hides irrelevant categories during searches; MailKeeper shows only those categories that share items with selected categories. As you click on more categories, the columns shrink, making it easier to find what you want. MailKeeper also lets you look for items by content, but searching isn't as fast.

The Last Word Getting comfortable with MailKeeper's approach takes some time, and its Common Ground–based electronic manual doesn't include enough practical examples. MailKeeper also suffers from a few interface quirks: you can add only seven categories at a time—the Add Category dialog box has only seven spaces—and you can't adjust category column widths. I'd also like to be able to import messages into MailKeeper without selecting and copying text. Still, the first release of MailKeeper is worthwhile if you have a large volume of electronic data to contend with. With a few improvements, MailKeeper could become a truly indispensable tool.—FRANKLIN TESSLER

RATING: ★★★/5.0 **PROS:** Inexpensive; fast category searching. **CONS:** Needs better integration with mail programs; minor interface problems. **COMPANY:** Nisus Software (619/481-1477, *info@nisus-soft.com*). **LIST PRICE:** $35.

Easiest. Save time with PhaserShare™ connectivity, PhaserLink™ remote control, and high-capacity trays and toners.

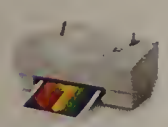
Finest. Sharpen your color images and text to 1200 x 1200 dpi.

Fastest. Maximize throughput to 14 PPM mono and 5 PPM full color.

Color is color, unless time is money.

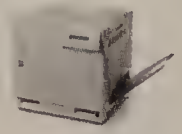
Reach for the new Phaser® 550 Color Laser from Tektronix. It whips through your workgroup's workload at 5 color pages a minute, 14 pages in black. It sharpens your image to a new dimension: 1200 x 1200 dpi, giving documents a razor-sharp edge over the competition. Text is crisp. Transparencies bright. Color blends are smooth and consistent. Color photos? Knock-outs. Connectivity is a snap, too, for PCs, workstations, Macs or any network. High-capacity features make high volume jobs a breeze. A standard web browser can manage it remotely. The Phaser 550 is supported by Tektronix, a Fortune 500 leader in workgroup color printers for 14 years. The price is right. The time for color is now. Just reach out and take it.

Adobe PostScript


Phaser 140

Phaser 240

NEW Phaser 340


NEW Phaser 550

Phaser 440

NEW Phaser 480X

Phaser 300i

Call 1-800-835-6100, Ext. 1265
http://www.tek.com/CPad?1265

Tektronix

Circle 143 on reader service card

© 1996 Tektronix, Inc. All rights reserved

Descent 1.0

WHICH WAY IS UP?

DOES A SHOOT-'EM-UP ADVENTURE have to include lots of blood and mayhem to be fun? Looking at the current crop of games, you might think so. Luckily for the squeamish, Descent changes all that. There's no carnage in this game; your opponents are asteroid-based mining drones. Your mission is to rescue hostages, destroy a power reactor, and get out of the mine before it explodes.

Descent's most stunning innovation is its 360-degree, 3-D maneuverability. Mine shafts head off in all directions, and you quickly lose the concept of "up." You hurtle through shafts, shoot robot drones, and replenish your supplies.

As you maneuver your fighter craft through the mine, it bobs slightly as if on a cushion of air. You actually feel as if you are floating gravity-free. Sounds come from all directions, making for a realistic experience. As your skills improve, the mining robots learn to outwit you, adjusting strategies based on your movements.

In addition to single-player options, Descent offers an anarchy mode in which every person fends for him- or herself, or a collaborative mode in which players team up against the robots. To test Descent's multiplayer features, I enlisted volunteers to play a network game on four Power Macs connected over Ethernet. The test players included expert gamers as well as novices who had never touched a joystick.

Daring Rescue You've found the hostages. Now you have to get them out alive.

Each player remarked on how unaware they were of their physical surroundings while playing. We all agreed that Descent sets a new standard for player immersion.

If you work in a cross-platform environment, you'll be able to collaborate with up to eight of your coworkers, regardless of their platform preference; Mac and PC versions of Descent can participate in the same network game. And, unlike competing games, Descent lets single players leave or enter at any time—if one person gets called away to a meeting, you don't all have to quit playing.

Despite its innovations, Descent has its share of minor drawbacks. Although the game installs on your hard disk for optimum play, you're required to leave the CD-ROM in the drive to hear sounds while playing. To provide the fastest action, Descent operates exclusively on Power Macs, leaving 680X0 machines behind. And although the PC version includes 120 additional customer-designed levels, the Mac version ships with just 30 predefined levels.

The Last Word Descent already offers true innovation in the crowded field of adventure games, and its graphics will impress hard-core gamers. When version 1.1 ships in a few months, its support for QuickDraw 3D will make its realistic environment even more impressive. I can hardly wait.—FRED DELISIO

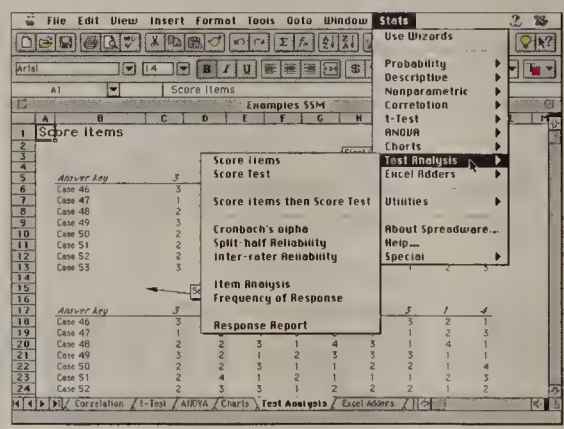
RATING: ★★★★/8.5 **PROS:** Real-time 360-degree motion; realistic graphics and audio. **CONS:** Fewer levels than PC version; CD-ROM must be in drive to launch; no support for 680X0 Macs. **COMPANY:** MacPlay (714/553-3530, *macplay@interplay.com*). **COMPANY'S ESTIMATED STREET PRICE:** $49.95.

Spreadware Statistics Menu 4

REAL STATISTICS WITHOUT LEAVING EXCEL

THERE'S A BADLY KEPT SECRET IN the math community that Microsoft Excel's statistics implementation is less than ideal. Excel does provide a foundation on which to build, however, and Spreadware has done just that. The aptly named Spreadware Statistics Menu (SSM) adds a statistics menu to Excel 5. Although you can find many of its functions in Excel's scrolling lists, SSM arranges the basics plus a wide array of advanced statistical functions in a neat, hierarchical menu.

Besides the expected descriptive and probability statistics, you get relatively complete suites of correlation and ANOVA stats. SSM includes the most popular nonparametric statistics and uses X-bar and R charts to represent quality-control statistics. One suite of tests—available in no other standard stats package—evaluates tests in educational or commercial practice. A time-series suite would have been a more conventional choice, so it's gratifying to see this outburst of marketing novelty.



This Is Only a Test One of SSM's unique features is a set of tests for evaluating tests, from academic exams to questionnaires to personality profiles.

Spreadware's implementation of stats functions is very good, particularly if you have enough memory; you should have 24MB on your Power Mac and allocate at least 5MB more than the minimum for Excel. That will improve calculation performance by nearly an order of magnitude over running in memory-cramped mode and preclude an array of Excel run-time errors that seem to pop up whenever SSM doesn't have room to run properly.

Spreadware appears to have reprogrammed most of the stats functions, which now run faster than their Excel equivalents. For the adventurous, Spreadware explains how to implement new functions in Excel's Visual Basic and includes sample code.

If you use Excel every day, adding SSM makes more sense than learning another program's data-handling conventions and charting commands. SSM's use of Excel's Range Wizards to set up analyses is especially nice, and you can use Excel's charts to produce colorful 3-D presentations.

SSM is necessarily weaker at exploratory statistical graphics than Data Description's Data Desk (see *Reviews*, March 1996) because SSM depends primarily on Excel for charts; nor would it be a good choice for the census-bureau-size data sets that SPSS (see *Reviews*, February 1996) specializes in, since SSM is limited by Excel's maximum worksheet size. Also, SSM's manual contains inconsistencies, but if you have some Excel experience you can work around them.

The Last Word This Excel add-in bears comparison with leading stand-alone statistics packages like Statistica and SYSTAT. It's cost-effective, and Excel users can put it to work in minutes.—CHARLES SEITER

RATING: ★★★★/7.4 **PROS:** Fast; convenient; tests for "test analysis." **CONS:** Limits on data-file size; manual has some glitches. **COMPANY:** Spreadware (619/772-1758, *spreadware@aol.com*). **LIST PRICE:** $229.

We offer unsurpassed digital image quality. (And by the looks of it, quantity too.)

The DC50 zoom camera is our newest point-and-shoot. It comes with three levels of image resolution, and a 3:1 zoom lens. PCMCIA-ATA compatible card optional.

The DCS 465 digital camera back is compatible with medium format cameras (HASSELBLAD, MAMIYA) and 4 x 5 view cameras. It offers 6 million pixel resolution, and works with professional flash systems.

The DCS 460 digital camera offers 6 million pixel resolution, and a high sensitivity for shadow and detail. Our premier digital camera.

The DCS 420 digital camera sports 1.5 million pixel resolution, and an initial continuous burst rate of 5 images in 2.25 seconds. The perfect NIKON camera partner.

The EOS-DCS 5 digital camera works seamlessly with CANON auto focus lenses, offers 1.5 million pixel resolution, and a continuous burst rate of 10 images in just over 4 seconds.

The DC40 camera offers a choice of snapshot and high-resolution pictures, 380,000 pixel images, 24-bit color, and a focus-free lens. Our most affordable digital camera.

Kodak didn't start out with this many digital cameras. We started out with one. The first megapixel digital camera ever built, in 1986.

Since then, we've made cameras for NASA, for professional photographers, for medical professionals, desktop publishers, and business people. And as we've created cameras to meet different needs, our digital camera family has grown.

While *Kodak Digital Science*™ cameras vary from high-end to point-and-shoot, what they share are the very things that make them *Kodak* cameras. A commitment to preserve image quality through every stage of the digital process. And the technology to make it so.

Technology including a sensor designed for computer images, not video output, that captures fine detail. A color filter array pattern that holds images true to form while minimizing pixellation.

A patent-pending compression algorithm, that prevents data loss during storage. And of course, Kodak's color expertise, responsible for our rich, true, saturated palette.

Together, this technology captures and protects images like no other single-shot digital camera, resulting in unsurpassed picture quality that you can only get from Kodak.

To find out more about our full line of *Kodak Digital Science* cameras, call 1-800-322-2177 ext. 603 in the U.S., 1-800-465-6325 ext. 36100 in Canada. Or visit us on the World Wide Web at http://www.kodak.com/

Kodak *ds* *digital science*™

It's how you put pictures to work.™

© Eastman Kodak Company, 1996. Kodak, Digital Science and the ds monogram symbol are trademarks of Eastman Kodak Company.

Circle 45 on reader service card

Lotus.

The power of people working together.

Introducing cc:Mail for Macintosh Release 3.0.

Lotus cc:Mail™ for Macintosh® Release 3.0 lets you send and receive virtually anything you can create to virtually anyone, on any mail system, anywhere in the world. It doesn't matter whether other users you talk to work on Macintosh or computers running DOS®, Windows®, or OS/2®. cc:Mail's 100+ file viewers let you read and print file attachments, developed on other operating systems and platforms. Call 1-800-872-3387, ext. B515* or explore Lotus on the World Wide Web at www.lotus.com for more information.

cc:Mail for Macintosh

cc:Mail is the most comprehensive e-mail system for the Macintosh. The new Release 3 features include: built-in AppleScript support which lets you drag-and-drop commonly used addresses, folders, and other objects to the desktop for easy accessibility; cc:Mail Rules which makes managing your e-mail easy by automating everyday tasks; and cc:Mail Viewers which let you view and print attachments even if you don't have the application with which they were created. When it comes to e-mail for the Macintosh, nothing is more complete or easier to use than cc:Mail.

*In Canada, call 1-800-GO-LOTUS. ©1996 Lotus Development Corporation, 55 Cambridge Parkway, Cambridge, MA 02142. Lotus is a registered trademark and cc:Mail is a trademark of Lotus Development Corporation. All company names are registered trademarks of their respective companies.

Circle 14 on reader service card

Mac IRISPen

PORTABLE, ACCURATE PEN OCR SCANNER

THE MAC IRISPEN IS A RESEARCHER'S dream come true, particularly for PowerBook users who want to extract a few paragraphs from a report or when using a full-size flatbed scanner would be impractical or overkill. This small, handheld scanner grabs text at 100 characters per second, converts it using OCR software, and inserts it directly into your application. The pen recognizes most printed material with a high degree of accuracy, and you can improve its precision by creating custom dictionaries of the fonts you encounter most often and training it to read oddball characters and fonts.

The miniscanner consists of the data pen itself, roughly the size of a VCR remote control, linked to an interface device that doubles as a cradle. A cable from the interface, which is powered by batteries or an AC adapter, plugs into your serial modem or printer port (use the modem port if your desktop machine is on a network, since you must disable AppleTalk when using the pen with the printer port). Both the modem or printer and the IRISPen can be plugged in simultaneously using a pass-through connector on the interface. A parallel-port version of the IRISPen that uses a proprietary NuBus card is also available.

SUZANNE ROADY

To use the IRISPen, you click on the IRIS application icon, lift the pen from its cradle, and pass the pen over a line of text as if you were using a highlighter. You can view the line you're scanning through a window in the pen; guidelines help you pinpoint the line you wish to capture. A roller at the tip of the pen acts as a start/stop switch, and a sliding control on the pen adjusts brightness. You can even insert a carriage return, space, tab, or other user-defined character by clicking a button on the side of the pen. Text of varying size, style, and quality presents no problem. (Because the scanning path is less than a half-inch high, though, text must be 22-point or smaller to be recognized.)

The IRISPen is remarkably forgiving of errant pen strokes; it accurately translated text even when my hand movements varied in speed or were slightly skewed. The pen also accommodates both left- and right-handed users. You'll need at least a 68020 with a Paged Memory Management Unit, 8MB of RAM (16MB for a Power Mac), and 32-bit addressing turned on.

The Last Word The IRISPen isn't designed for high-volume OCR applications and can't capture images, but it shines at specialized data input, such as grabbing customer numbers from invoices or transferring figures from spreadsheets. It's small enough to be easily portable, and its OCR accuracy is sufficient for most applications (although you'll want to double-check figures scanned in from spreadsheets). This is definitely a niche product, but one that meets an important need.—DAVID D. BUSCH

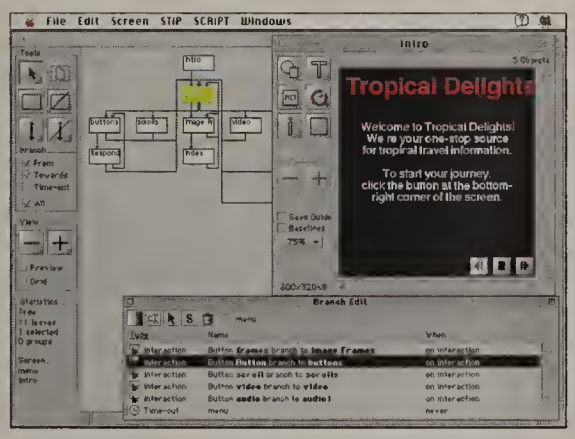
RATING: ★★★/6.9 **PROS:** Portable; accurate; lets you scan just what you need; accommodates uneven scanning strokes and variable text. **CONS:** Tedious for capturing large quantities of text; networked users must turn off AppleTalk to free up printer port. **COMPANY:** Image Recognition Integrated Systems (407/395-7831, *iris@hooked.net*). **LIST PRICE:** $299.

STiP Professional 2.1

PROMISING, BUT FLAWED, MULTIMEDIA AUTHORING PROGRAM

ONCE YOU GET PAST ITS AWKWARD name, you'll find STiP Professional is a powerful, if quirky, multimedia authoring tool that lets you create interactive titles for the Macintosh and Windows, save finished projects in a protected form, and distribute them royalty-free. *STiP* stands for Screens, Trees, and scrIptable Player, the program's defining characteristics. Rather than arranging media elements along a timeline, as in Macromedia Director, you draw lines that interconnect screens, creating a flowchart called a *tree* (see "STiPulations").

Developed by Grant Software Solutions and distributed by MacVonk, STiP has a graphical development environment similar to that of Apple's Apple Media Tool and Macromedia's Authorware Professional. Unlike Apple Media Tool, however, STiP has a robust programming language for reading and writing files, controlling a production's elements, displaying movies and playing sounds, and interacting with external devices. And unlike Authorware, STiP provides rudimentary support for text and is saddled with a vague manual and simplistic sample projects.



STiPulations You define the relationship between screens and their elements using STiP's Tree Edit and Branch Edit windows. It's a fairly simple process, although you'll scratch your head a bit at first.

STiP's built-in screen editor lets you import graphics in several formats, QuickTime movies, and text. Its tools let you draw simple shapes; type text; and create interactive buttons, frames, and scroll bars. You can also create master pages to hold elements that are used on several screens; only Authorware Professional 3.0 has a similar feature.

Although the screen editor is powerful, it has some surprising shortcomings. Unlike virtually every draw package, STiP doesn't let you press the shift key to constrain movement horizontally or vertically while dragging an element, or to retain an element's proportions when resizing. Scroll bars are another problem: the bars STiP creates don't look or work like standard Mac scroll bars, and attaching one to a lengthy text field is a cumbersome process.

STiP's scripting language provides a full complement of control structures, variable types, and functions. Unfortunately, the language bears little resemblance to other scripting languages, so even experienced authors will find themselves at the bottom of the learning curve.

The Last Word STiP Professional is an odd mix of genuine power and glaring weaknesses. I wouldn't use it for text-oriented projects, but it is well suited to graphically complex ones. (You can download a demo version from *http://www.ccinet.ab.ca/macvonk/*.) STiP Professional has promise, but it needs some work to, um, live up to its name.—JIM HEID

RATING: ★★/4.9 **PROS:** Good (if erratic) performance; royalty-free distribution of final projects; robust scripting language. **CONS:** Awkward omissions; nonstandard scroll bars; poor documentation. **COMPANY:** MacVonk (403/232-6545, *mvc@eworld.com*). **LIST PRICE:** $1295.

FUNNY, YOUR

GUARDIAN ANGEL WAS

BEHIND YOU

A MINUTE AGO.

THE SICKEST, MOST ENGROSSING PC GAMES EVER CREATED HAVE COME TO THE MAC. THEY'RE ULTIMATE DOOM, DOOM II AND HEXEN IN THEIR ENTIRETY. THEY HAVE FOUR TIMES THE GRAPHIC RESOLUTION OF THE PC VERSIONS. THEY HAVE MAC-TO-MAC AND MAC-TO-PC PLAY. THEY HAVE EXTERNAL WAD FILE SUPPORT TO DOWNLOAD CUSTOM LEVELS FROM THE INTERNET. AND THEY ARE MORE THAN YOU, OR YOUR CELESTIAL SIDEKICK, CAN HANDLE.

id® SOFTWARE RAVEN MATURE M AGES 17+

Distributed by GT Interactive Software. http://www.gtinteractive.com

Hexen™ ©1995 Raven Software, Inc. All rights reserved. Doom II™ ©1994 id Software, Inc. All rights reserved. The Ultimate Doom™ ©1993, 1995 id Software, Inc. All rights reserved. Certain software code ("id Code") owned by id Software, Inc. is contained within Hexen™ and is used by Raven Software, Inc. pursuant to a license from id Software, Inc. Id Code ©1993, 1995, 1996 id Software, Inc. All rights reserved. Hexen™ is a trademark of Raven Software, Inc. Doom™, The Ultimate Doom™ and id™ are trademarks of Id Software, Inc. The id logo® is a registered trademark of Id Software, Inc. GT™ and the GT logo™ are trademarks of GT Interactive Software Corp. Mac™ is a trademark of Apple Computer, Inc. Macintosh® is a registered trademark of Apple Computer, Inc. All other trademarks are the property of their respective companies.

NOW AVAILABLE FOR THE MAC

HEXEN™ THE ULTIMATE DOOM™ DOOM™

Circle 184 on reader service card

Sony PC Cam

DESKTOP CAMERA LACKS AV STRENGTH

SONY'S PC CAM DESKTOP VIDEO camera lets you record impromptu QuickTime movies, scan still video images, or project your smiling visage over a videoconferencing system using your AV-equipped Mac. Like its competitor, VideoLabs' FlexCam (see *Reviews*, December 1994), the PC Cam features a manual-focus lens with a 0.25-inch color CCD (charge-coupled device) mounted on a flexible gooseneck.

If your desk space is limited, you'll appreciate the PC Cam's small size. Its base is just 3.5 inches wide—half the width of the FlexCam—and its neck is 11 inches long, compared with the FlexCam's 18 inches. Fortunately, the PC Cam's smaller size does not inhibit its pliability.

Like the FlexCam's, the PC Cam's neck retains shapes no matter how much you twist and turn it; you can shoot objects sitting on a tabletop or frame a person's face without repositioning the camera's base. Even better, you can center the camera in front of your monitor so that you look directly into the lens while viewing on-screen images, a must for maintaining the appearance of eye-to-eye contact during videoconferencing. You can also rotate the camera head 90 degrees without adjusting the neck—compared with 60 degrees for the FlexCam.

The Perfect Frame The PC Cam lets you frame and focus your subject with alarming accuracy. But background highlights tend to wash out and the lens produces a pronounced fish-eye effect.

Unfortunately, the PC Cam's sound and video are second-rate next to the FlexCam's. For example, the PC Cam sports a monaural microphone; the FlexCam records in stereo. And although the PC Cam offers two video jacks—composite and S-Video—Sony neglects to include an S-Video cable.

The PC Cam can focus on objects as close as 0.44 inch (the FlexCam goes as close as 0.25). As with the FlexCam, the wide-angle lens accommodates videoconferencing, but distorts close-up shots. Even though the PC Cam lets you adjust the iris to compensate for poor lighting, it requires at least 9 lux to function, compared with less than 3 for the FlexCam. As a result, you may have to turn on a few extra lights in your office, which can result in too-bright highlights and exaggerated contrast.

The Last Word The PC Cam's inconspicuous appearance is its only real advantage apart from its smaller size—the bizarre-looking FlexCam, in contrast, resembles something from a Terry Gilliam movie. Though the PC Cam performs its job reliably, it's inferior to the FlexCam in most regards. Equipped with higher-quality sound, better video, and all the necessary cables, the FlexCam is simply the better camera.—DEKE McCLELLAND

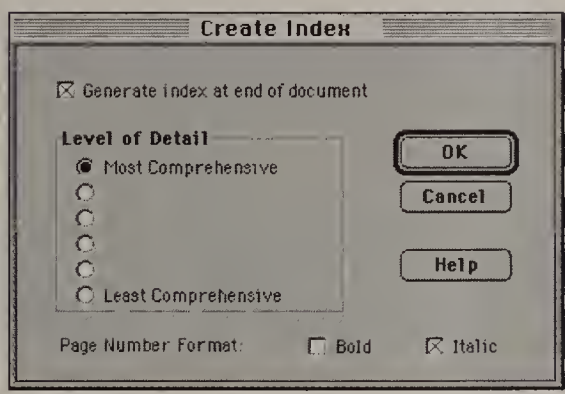
RATING: ★★★/5.9 **PROS:** Freestanding with gooseneck mount; small footprint; lens rotates 90 degrees. **CONS:** Mono sound; lacks S-Video cable; lighting response inferior to FlexCam's. **COMPANY:** Sony Electronics (941/731-4940, *contact@sel.sony.com*). **LIST PRICE:** $499.

Indexicon 1.0

INDEXING PROGRAM FOR WORD 6

BEFORE I WROTE THIS REVIEW, I was skeptical of computer-based indexing programs. Having written it, I'm even more skeptical. I looked at Indexicon, a program that automatically finds indexable terms in Microsoft Word 6 documents and compiles an index.

Indexicon is easy to use: simply select it from Word's Tools menu, set the level of detail, and press a button. First I used Indexicon on a chapter from a book on Macintosh fonts. At the Most Comprehensive level, the program took about 11 minutes to create a 175-entry index for a 14-page chapter. It found key terms such as *black-letter type*, *Chaucery script*, and *kerning*. It was even smart enough to list two-word font names such as *Monotype Grotesque*. But things went downhill from there. While it indexed many relevant terms, it also missed numerous terms, including *em dash*, *leading*, and *pica*. It was flummoxed by proper names, listing Nicolas Jenson as *Nicolas Jenson* rather than *Jenson, Nicolas;* it had a tendency to start entries with adjectives (*Slushy winter roads*); it treated plurals as separate entries, listing *Descender* on one page and *Descenders* on another; and it didn't recognize apostrophes, resulting in entries such as *Computer s instructions*.



Indexing Options Indexicon lets you create an index that ranges from minimal to comprehensive.

Finally, Indexicon's index contained a lot of inappropriate entries, including *Musical compositions*, *Newspaper*, and *Wine*. The latter entry illustrates Indexicon's fatal flaw; unlike a human indexer, it doesn't understand what it's reading (the chapter noted that early printing presses were based on wine presses). You can eliminate such spurious terms by viewing flagged entries in a document and editing them before compiling your final index, but that's time-consuming. When Indexicon indexed a chapter of a book about the Internet, it listed many relevant terms—*Internet Relay Chat*, *Modem speeds*, *NSFNET backbone*—and a good deal of nonsense, including, *Santa Cruz Banana Slugs*, *Walnut-sized sub-brain*, and *Uncle Steve Yahoo*. Granted, the author writes in a colorful style, but no sane indexer (and indexers are an extraordinarily sane lot) is going to enter *Uncle Steve Yahoo*. Indexicon did better with a dry-as-a-bone article on programming, finding programming commands and other special terms. Still, the usable-entries–to-chaff ratio was too high. Decreasing the level of detail didn't help. A midrange setting didn't find enough relevant entries, and the Least Comprehensive setting generated a one-entry "index" for the font-book chapter.

The Last Word A computer-based indexer is a laudable idea, but one that needs work. Perhaps a bank of supercomputers running a neural net could equal the brainpower of a human indexer. This personal-computer–based program can't. Instead of buying Indexicon, I'd recommend spending $40 on *The Chicago Manual of Style* and reading the section on indexing.—ERFERT FENTON

RATING: ★★/3.0 **PROS:** Automates finding indexable terms. **CONS:** Has trouble identifying indexable terms; works only with Microsoft Word 6. **COMPANY:** Iconovex (612/896-5100) **LIST PRICE:** $129.

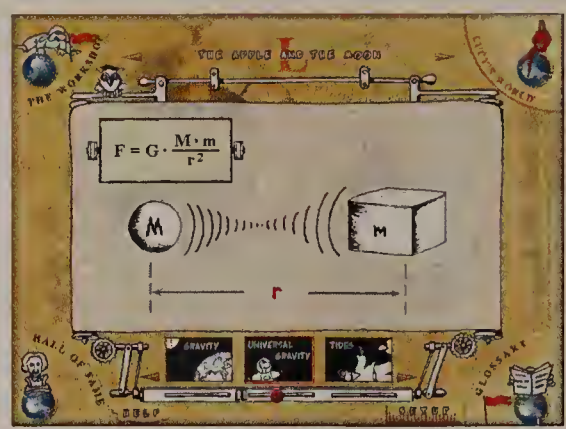
The Cartoon Guide to Physics

ENTERTAINING INTRO TO KINEMATICS

LARRY GONICK'S *CARTOON GUIDES* are a smashing success in traditional publishing—the physics and the statistics guides are perennial best-sellers in their subject areas. HarperCollins Interactive has performed the admirable feat of making a CD-ROM that's as good as Gonick's books.

The Cartoon Guide to Physics (CGP) covers the first semester's worth of material in a high-school or introductory college physics course: velocity, acceleration, gravity, and angular momentum. It doesn't include electricity and magnetism, or thermal physics. The program is designed to accompany regular coursework; however, someone with intellectual curiosity and a minimal background in algebra could probably follow most of the material.

There are two action sections of the CGP screen (Lucy's World and The Workshop) and two reference sections (Hall of Fame and Glossary). In Lucy's World, an astronaut character lectures and acts out concepts such as constant gravitational acceleration and orbital motion. The Workshop lets you perform on-screen experiments—carefully keyed to the Lucy's World tutorial—on potential versus kinetic energy, conservation of momentum, acceleration, and gravity (see "Physics Pix Make Equations Click").



Physics Pix Make Equations Click In the Cartoon Guide's Workshop, ingenious animations explain standard equations.

There are plenty of educational CD-ROMs on the market in which sound and animation are merely a distracting sideshow. CGP is different; its multimedia features—which are based on the art in the original book—make serious and complex points, just as Larry Gonick's cartoons perform genuine educational functions in the printed *Cartoon Guide* series.

CGP has a few quirks. At several points Lucy prattles on about equations while the screen display remains static. Hall of Fame contains short descriptions of twentieth-century physicists, although the physics lessons stop with Newton's first discoveries in the seventeenth century. The Mac version has Windows-style close boxes, and sometimes it's tricky to restart an animation after you've ducked out for a peek at the Glossary section.

On a more serious note, the program requires 8MB of RAM. If ever there was a program designed to make education happen on millions of Performas, CGP is it; unfortunately, most Performa owners will have to pop for a RAM upgrade first.

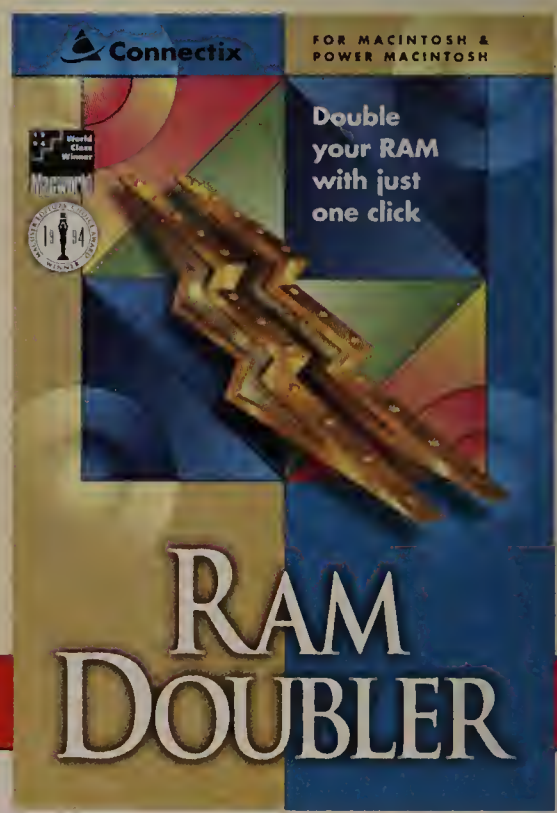
The Last Word Cartoon Guide to Physics is a real value. It teaches a good introductory mechanics course, and it's interesting to users who just want to understand how the universe works.—CHARLES SEITER

RATING: ★★★★/8.6 **PROS:** Animations really teach—they aren't just window dressing. **CONS:** Limited to mechanics; requires 8MB of RAM. **COMPANY:** HarperCollins Interactive (212/207-7000, *interactive@harpercollins.com*). **LIST PRICE:** $49.95.

What Do You Say When You're Out Of Memory?

I need RAM Doubler.

The more memory your Mac has, the more productive you'll be. But forget about adding SIMMs. RAM Doubler™ is software that doubles your Mac's memory. *RAM Doubler does what it says it will do.~Macworld.* And you don't have to open your Mac. Just run RAM Doubler's 15 second installation and you can run twice as many applications – instantly. *May well be the best investment you make this year.~MacUser.* You'll agree. Buy RAM Doubler today and double your RAM with one click. Your satisfaction is guaranteed. RAM Doubler is available wherever great software is sold.



Connectix

System Requirements: Macintosh equipped with a 68030, 68040 or PowerPC microprocessor. System 6.05 or later, including all versions of system 7 • 4 MBs required (hard disk required for machines with 4 to 6 MBs) • Not compatible with Mac SE, original Mac Classic, original Mac LC or PowerBook 100 or Mac II without a 68851 PMMU or any accelerator that does not work with virtual memory.

© 1995 Connectix Corporation. 2655 Campus Drive, San Mateo, CA 94403 USA. 800-839-3629 • 415-571-5100 • FAX: 415-571-5195
EMAIL: info@connectix.com • RAM Doubler is a trademark of Connectix Corporation. All other trademarks are the property of their respective holders.

Circle 192 on reader service card

Accelerate your PCI Bus with SCSI.

The Apple® Power Macintosh™ is fast. And, the new PCI bus makes it even faster. But without Adaptec® PCI-to-SCSI acceleration, it may never reach full throttle.

Introducing the new Adaptec PowerDomain™ 2940W SCSI accelerator. It'll make you feel like you turned a crop duster into a supersonic jet. It's the fastest PCI-to-SCSI card available. Watch your Adobe® PhotoShop™ files fly at top speed — up to 40 MB per second. Plus, it's also designed for Ultra peripherals today.

HOW TO MAKE POWER MACINTOSH FILES FLY.

But, that's the performance people expect from Adaptec. For over a decade, we've made SCSI the performance I/O of choice. In fact, after helping to develop the PCI standard, we've shipped over 1.2 million PCI-to-SCSI boards — more than all of our competitors combined.

So the next time you're finger tapping while you wait to capture a digital file, call 1-800-804-8886 ext. 7736.* We'll tell you how your Power Macintosh can really take off.

adaptec

I/O. NOW MORE IMPORTANT THAN EVER.

*For more information by fax, dial 1-408-945-2570 ext. 7736, request document no. 24605 or visit our World Wide Web home page at http://www.adaptec.com

©1995 Adaptec, Inc. All rights reserved. Adaptec, the Adaptec logo, PowerDomain, and AHA are trademarks of Adaptec, Inc. which may be registered in some jurisdictions. All other trademarks used belong to their respective owners.

In the 1st Degree

REALISTIC, INTERACTIVE LEGAL THRILLER

EVEN IF YOU DIDN'T GET HOOKED on the O. J. Simpson trial, there's a good chance you'll get sucked into Broderbund's high-tech courtroom drama, In the 1st Degree. This interactive adventure mixes intrigue, suspense, psychology, and a dash of cynical humor in a slick package that's nearly irresistible.

When you play In the 1st Degree, you see the world through the eyes of an attorney working a complex, high-profile murder case. Your job isn't to determine whodunit—art-gallery owner James Tobin freely admits he shot his partner. As prosecutor, you need to systematically disprove Tobin's claim of self-defense so you can win a first-degree murder conviction.

More than any game we've played, In the 1st Degree has the look, feel, cinematography, and pacing of a high-quality television drama. Emmy-award–winning producers, working with professional actors, state-of-the-art digital-video techniques, and a first-rate script, bring new realism to the genre of interactive fiction.

There are no cardboard computer-game characters here; the players in this drama have emotional depth and humanity. Witnesses react realistically to your questions, and their responses vary depending on your style of questioning. Only by successfully playing on the psychological quirks of each witness can you uncover the full story (see "On the Stand").

On the Stand It's obvious that Ruby's holding something back. She'll talk, but only if you ask the right questions.

A television news team shows up between scenes to provide one-dimensional "expert analysis" and commentary. Their superficial pontification provides wry humor to balance the dark drama as it unfolds.

Our first game started as a solo effort, but by the time we reached the courtroom, six of us were crowded around the Mac, loudly arguing over legal strategy.

Even with our family's best legal minds on the case, we were barely able to score a second-degree conviction, and post-trial TV commentators wasted no time roasting our performance. Undaunted, we tried again and watched how the trial unfolded differently with each new strategy. Finally we returned, armed with the official $19.95 strategy book, and landed a solid first-degree conviction and a dramatic ending that exceeded our expectations.

We only encountered one minor conflict: we had to unplug the QuickTime Power Plug extension before we could play. But a helpful dialog box pointed out the conflict in advance.

The Last Word In the 1st Degree is a technological tour de force. If interactive TV is the future of home entertainment, In the 1st Degree takes a big step toward that future.—GEORGE AND BEN BEEKMAN

RATING: ★★★★/8.8 **PROS:** Seamlessly integrated digital video; excellent acting and cinematography; multiple plot threads and endings. **CONS:** Less interesting after a few playings; incompatible with QuickTime Power Plug extension. **COMPANY:** Brøderbund Software (415/382-4700, *webmaster@broder.com*). **COMPANY'S ESTIMATED STREET PRICE:** $49.95.

Break the speed limit.

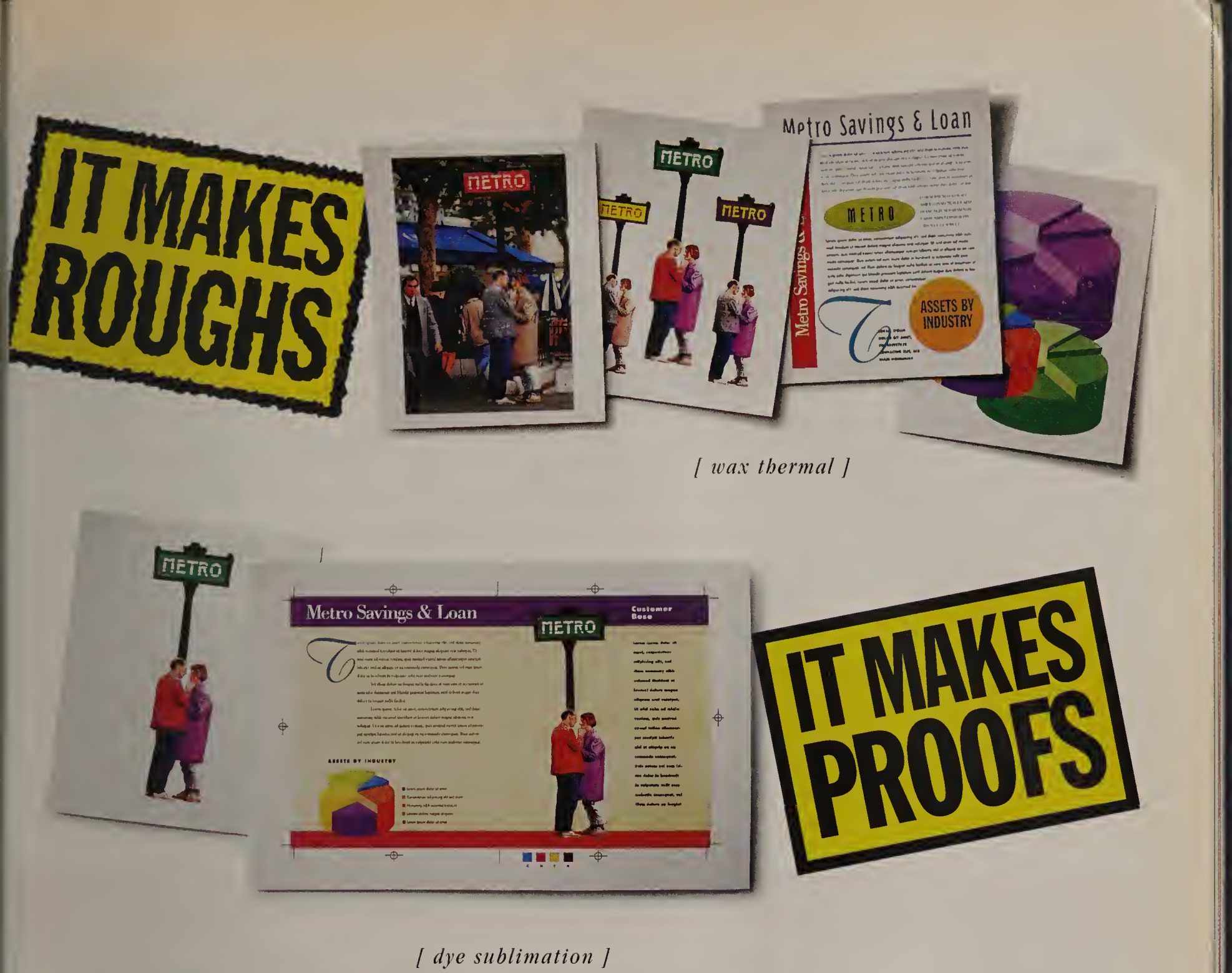
Break the speed limit on your Mac with Speed Doubler™. It's software that installs in seconds, requires no hardware upgrades and takes your Mac to the next level of performance. You get faster access to the data you use most. Faster disk access. Faster Finder performance. And check this: Speed Doubler automatically doubles the emulation speed on Power Macs.

With Speed Doubler, Power Macs instantly run non-native applications twice as fast! For instance, recalculate a 5000 cell Excel 4.0 spreadsheet with Speed Doubler in 6 seconds, without it...13 seconds. Run a summary calculation of 1500 FileMaker Pro records in 90 seconds instead of 3 minutes. It's not magic. It's Connectix Speed Doubler. And if you own a Power Mac, you gotta have it. Get Speed Doubler today wherever fine computer products are sold. Your satisfaction is guaranteed.

Requirements: Macintosh equipped with a PowerPC, 68040, or 68030 microprocessor • System 7.0 or greater • 8 MB physical RAM or greater • Compatible with Connectix RAM Doubler • Not compatible with Mac Plus, Mac SE, original Mac Classic, original Mac LC or PowerBook 100

© 1995 Connectix Corporation. 2655 Campus Drive, San Mateo, CA 94403 USA • 800-839-3629 • 415-571-5100 • FAX: 415-571-5195 • EMAIL: info@connectix.com
Speed Doubler and RAM Doubler are trademarks of Connectix Corporation. All other trademarks are the property of their respective holders.

Circle 193 on reader service card



Do the numbers.

Call us and we'll send you a Seiko Instruments *Profit Disk* that lets you calculate for yourself how quickly a ColorPoint dual technology printer pays for itself.* You'll be amazed at how much sense (*and dollars*) buying a dual technology printer from Seiko Instruments can make.

Just think of it, two printers in one. The economical ***thermal wax*** mode for roughs and drafts, and the ***dye sublimation*** mode for crisp, photorealistic final proofs that come incredibly close to your Matchprints. With Adobe PostScript Level 2, a high capacity internal hard disk, full-bleed output in both letter and tabloid, you get the best of all worlds. Without having to pay for all of them. In fact, if you want to lease a ColorPoint printer, we can help you there too.

Get your *free* Seiko Instruments *Profit Disk* today and start getting serious about the quality of your work. It makes perfect sense. Call **1-800-888-0817**. Get serious. Get Seiko.

SII
Seiko Instruments

**Calculations show that a ColorPoint dual technology printer can pay for itself in as little as 6-months under average use.* ©1996 Seiko Instruments USA Inc. ColorPoint is a trademark of Seiko Instruments USA Inc. Matchprint is a trademark of 3M Corporation. Postscript is a trademark of Adobe Systems Inc. Metro photography by Chris Hardy.

Circle 93 on reader service card

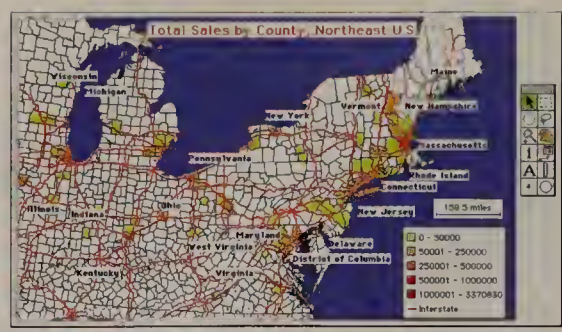
MapLinx 3.0

A ZIP-CODE-LEVEL MAPPING PROGRAM

DATA-MAPPING SOFTWARE RANGES from utterly basic programs that place a dot in the center of each zip-code area where you have a customer to the breathtakingly sophisticated programs used to reapportion legislative and congressional districts. MapLinx 3.0 falls into the zip-code-dot category.

Your data must be in a tab-delimited text file, and every record needs a zip code. You can also set up a publish-and-subscribe link with an application (MapLinx reads files from ACT, 4th Dimension, DataDesk, and Control Classic). MapLinx can display data as zip-code centroids, or it can shade counties or states based on a designated field. The program quickly and accurately read the 5- and 9-digit zip codes in my 2600-record data file.

MapLinx provides almost no data-manipulation capabilities: it can count the number of records for each zip code, county, or state; and it can total or average the values in a field for all the records in each zip code, county, or state. Unfortunately, it provides few other useful capabilities. For example, MapLinx can't automatically display points of different sizes or colors based on a value (you can modify points and colors manually). It can't calculate across fields in the data file—for example, to compare 1995 sales against 1994 sales. Nor does MapLinx provide statistical or analytical tools—you can't identify outliers, cross-regional trends, and so on. It can automatically define breakpoints—that is, it can break the values into ranges such as $0 to $5000, $5001 to $10,000, and the like.



Northeast Sales Sales ranges were set manually. The progression from light yellow to dark red matches sales figures.

MapLinx lets you label points or regions on the map, add and format text and point symbols, and hide or display a few geographical references such as major roads and major cities. Unfortunately, you can't modify the text or layout of a map's legend.

A serious drawback is MapLinx's closed architecture. You cannot create custom regions, such as sales territories, or add map geometry, such as municipal boundaries. In fact, you can't even add Hawaii and Alaska. MapLinx also has a few interface quirks. For example, to hide or display map features, labels, or data on the map, you must press A (to *always* show), R (for a *range* of zoom levels you can't set), or N (to *never* show), and double-click on cells in the Data Layers or Map Layers palette. This isn't merely weird—it's hard to remember. And tugging on a corner to make the map bigger or smaller changes its scale, while tugging on its top, bottom, and sides changes the area displayed.

The Last Word MapLinx is a useful tool if you only need to see where your customers are located. It can produce basic reports, such as a list of records, or a quick summary of records by data type. But if you need to analyze your company's market opportunities or sales, simple lists and quick summaries won't be enough.—DAN LITTMAN

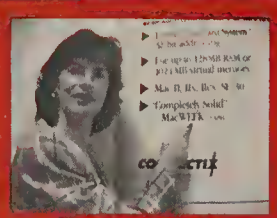
RATING: ★★/4.4 **PROS:** Easy to use; snappy screen refresh. **CONS:** No data-manipulation capabilities; few visual-enhancement tools; can't create custom regions; interface quirks; no map for Alaska or Hawaii. **COMPANY:** MapLinx (214/231-1400). **LIST PRICE:** $149.95.

What Do You Do With A $100 Digital Video Camera?

Have A Ball.

QuickCam™ includes everything you need to make movies and take pictures with your Mac. Plug in one cable, install the software and you're ready to roll. Add still photos to documents, newsletters, databases. Record QuickTime® training movies, video conference, create animated cartoons – all for around $100. Works with all QuickTime compatible software and on all QuickTime compatible Macs, including PowerBooks®. It's easy, fun, and your satisfaction is guaranteed. Get your QuickCam today where fine computer products are sold.

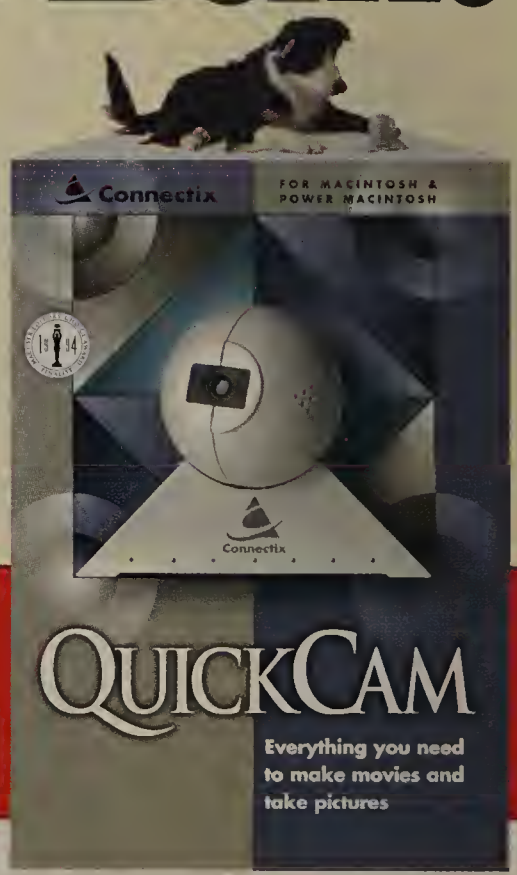
Connectix


MAKE MOVIES

VIDEO CONFERENCE

TAKE PICTURES

BE CREATIVE



© 1995 Connectix Corporation. 2655 Campus Drive, San Mateo, CA 94403 USA. 800-839-3629 • 415-571-5100 • FAX. 415-571-5195 • EMAIL: info@connectix.com. QuickCam is a trademark of Connectix Corporation. QuickTime and PowerBook are registered trademarks of Apple Computer, Inc. All other trademarks are the property of their respective holders.

Circle 191 on reader service card

Created on a Macintosh with 64MB of Kingston memory. ▼

◀ Created on a Macintosh with 8MB of Kingston memory.

Created on a Macintosh with ▶ 128MB of Kingston memory.

These Days, It Takes A Lot More Memory To Be Your Best.

Many of the masterpieces created on a Macintosh have one very powerful ingredient in common: Kingston memory. As software becomes more and more complex, memory demands go up. Of course, it's not only the amount of memory that matters, it's the quality. Nobody understands that better than Kingston. We test 100% of our modules. In fact, we test every cell on every chip on every module.

On a 16 megabyte module, that's 128 million cells. Only the modules that survive get the Kingston name. That's why we're an Authorized Apple RAM Developer and committed to selling the highest quality Macintosh memory. After all, your best work is a showcase for our best work. To find Kingston memory that was made specifically for your Macintosh, just call (800) 435-0677.

Kingston® TECHNOLOGY CORPORATION

For more information call us at (800) 435-0677 ISO 9001 SGS *or look for us on the Net: http://www.kingston.com*

Kingston Technology Corporation, 17600 Newhope Street, Fountain Valley, CA 92708 USA, (714) 435-2667, Fax (714) 435-2618 © 1995 Kingston Technology Corporation. Kingston Technology is a registered trademark of Kingston Technology Corporation. All rights reserved.

Circle 201 on reader service card

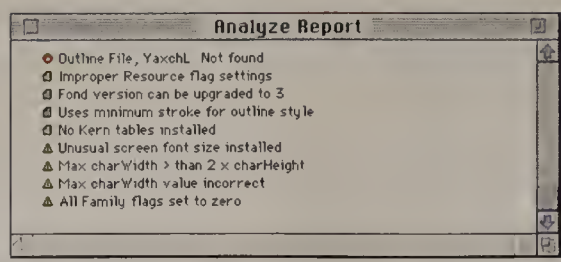
theFONDler 4.0.1

FONT UTILITY DIAGNOSES PROBLEMS

DO YOUR FONTS EVER BEHAVE strangely? Perhaps a font you installed doesn't show up in a Font menu. Or it shows up in the menu but prints as another font. Maybe a font seems to print just fine—until you notice it has no kerning pairs. If you use a lot of fonts, sooner or later you'll encounter behavioral mysteries. In many cases, theFONDler can solve them.

This diagnostic utility can spot—and often fix—a variety of font problems. (Its name derives from the FOND—font family descriptor—resource.) Font troubles stem from a number of sources, including font-ID-number or -name conflicts, missing fonts, damaged files, or files that weren't created according to specs. theFONDler spots these anomalies, and others.

The Analyze function checks your font library for possible problems and generates a list of any glitches it finds. Icons indicate the severity of each problem, from items of interest (for example, the font requires the Symbol font to print certain characters) to highly suspicious findings (a corrupt PostScript printer file). These findings don't always tell you why a font is misbehaving, but in some cases they point you to a solution; if a file is damaged, for example, you can try reinstalling the font from its original disk. I used Analyze to check fonts on a bargain-priced CD-ROM; when the report indicated that the fonts didn't include kerning tables, I didn't bother installing them.



Inner Workings of Fonts theFONDler's Analyze function checks fonts and lists potential problems.

theFONDler can also help you organize your fonts. The Collect function gathers all the fonts on your hard disk into a single folder; the Disburse function arranges them into family-based folders. Once theFONDler rounds up your fonts, you can have it check for duplicate font-ID numbers or names, which can cause frustrating display and printing problems. Another handy option automatically deletes unwanted screen-font sizes, which many ATM users like to do.

You have to know a thing or two about the internal workings of fonts to understand many of theFONDler's messages. Even though the manual explains diagnostic messages, a casual user probably won't know what to do when informed that "Family ID differs from Resource ID." Unfortunately, the manual, although detailed, does little to enlighten you as to what some of the problems might mean, or what you can do to fix them. The user interface can be intimidating as well; I found navigating from menu item to dialog box to subdialog box to be confusing in some cases.

The Last Word theFONDler is a versatile and valuable diagnostic tool, but it's not for everyone. If you understand the basics of how fonts work, but are still bedeviled by puzzling font problems, theFONDler may be just what you need. It can also come in handy for owners of huge font collections, font designers, people who want to check the quality of bargain fonts, or those who send files to imaging service bureaus.—ERFERT FENTON

RATING: ★★★/6.5 **PROS:** Extensive tests for font problems; aids for organizing fonts. **CONS:** Problem explanations and solutions not always clear; user interface needs work. **COMPANY:** Rascal Software (805/255-6823, *rascal@rascalsoft.com*). **COMPANY'S ESTIMATED PRICE:** $69.95.

Circle 10 on reader service card

This could be a best seller.

But it's free.

You can't buy the Consumer Information Catalog anywhere. But you can send for it, free! It's your guide to more than 200 free or low-cost government publications about getting federal benefits, finding jobs, staying healthy, and lots more. Send today for your latest free Consumer Information Catalog. The Catalog is free. The information is priceless.
Send your name and address to:

Consumer Information Center Department BEST Pueblo, CO 81009

It's Here!!!

THE $99 RELATIONAL UPGRADE FOR FILEMAKER PRO.

JUST SOME OF THE NEW FEATURES

- RELATIONAL POWER
- ENHANCED SCRIPTMAKER
- AUTO PHONE DIAL
- INTEGRATED MAIL MERGE
- LARGER FILE SIZE
- OPEN MORE FILES
- NEW TEMPLATE SOLUTIONS
- NATIVE POWER MAC™
- PARAGRAPH FORMATTING

Great news in the battle to be more productive: the revolutionary upgrade for the leading Macintosh® database is now shipping, complete with an arsenal of innovative features. "FileMaker® Pro 3.0 is the ultimate in relational databases and it makes great improvements over its worthy predecessors," says Mac Home Journal (1/96). It "...puts all other Mac databases to shame," raves Small Business Computing Magazine (1/96). FileMaker Pro 3.0 only costs $99 to upgrade or $199 for the full product. So march on over to your nearest dealer, or just call 1-800-293-0617ext.995 to order direct.*

CLARIS®

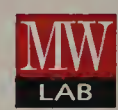
Simply Powerful Software™

*In Canada, please call 1-800-361-6075, ext.141.

© 1996 Claris Corporation. All rights reserved. Claris, FileMaker and ScriptMaker are registered trademarks and Simply Powerful Software is a trademark of Claris Corporation in the U.S. and other countries. Macintosh is a registered trademark and Power Mac is a trademark of Apple Computer, Inc. in the U.S. and other countries. All other trademarks are property of their respective owners. Pricing reflects Claris' estimated retail price and actual price may vary.

GET ON THE WEB

FORGET UNIX—BUILD YOUR SITE ON THE MAC



You say you're feeling queasy because your boss just stopped by your office and asked, "Where's our Web server?" You feel oppressed because you're supposed to get online order processing, technical support, and periodic video updates of the office aquarium up and running by Friday? You think that your life is over because this means you finally have to learn Unix? Well, cheer up, Bucko. You are about to read everything you need to know to get a Web server set up by Friday—perhaps not this Friday, but one in the near future. All you need is your Macintosh wiles, and a friend in the accounting department to funnel a little extra money your way.

Conventional wisdom holds that you get your company online by renting space on a Unix Web server from your friendly neighborhood Internet service provider. Such providers have a fast connection to the Internet and an experienced staff happy to charge you good money to set up and deliver your corporate home page. While this approach works, you're stuck with whatever server technology your provider supplies, which usually means maintaining (or paying a Web guru to maintain) your site using FTP and archaic Unix commands. And if you want to do fancy things like custom orders, secure commerce, database retrieval, or real-time multimedia (for example, your boss's GuppieCam), you're likely out of luck.

But wait. Shouldn't your Mac be able to do this? A Web server is, after all, nothing more than a program running on a computer that has a full-time TCP/IP Internet connection. With TCP/IP built into System 7.5 (it was previously available as a System 7.1 extension), the Macintosh should be a natural at home-page delivery.

A Mac-based server lets you take advantage of technology you already understand, access information you already have on hand, and process it with tools you already know how to use. Some servers even take advantage of the Mac's graphical interface to make Web-server setup point-and-click simple. But can a Mac running one of the several server products now available really do the job a Unix box can?

To find out, Macworld Lab compared five Mac Web server products—Quarterdeck/StarNine's MacHTTP and WebStar, httpd4Mac shareware, InterCon's InterServer Publisher, and Tenon's MachTen—for performance, ease of use, and features, in a range of scenarios running on a Power Macintosh 7500/100, an excellent choice for server hardware. And we tested a Unix server, the NCSA HTTPd running on an IBM RS/6000 Model 250, to see if the Mac can compete in the real world. The Mac makes a good showing, although it doesn't do everything as well as a Unix server. It's certainly a contender worth some serious attention.

BY MEL BECKMAN

Which Mac Is Right?

Just about any Macintosh can run TCP/IP, so you might think any Mac would do as an Internet server. The processing demands placed on an Internet server, though, require at least a 68040 processor, and a Power Mac is really a better candidate for handling medium to heavy traffic.

Which OS version and TCP/IP support you use also affects performance. MacTCP has some painful limitations. First, it is not PowerPC-native, so it runs at some disadvantage on Power

Meeting the Challenge A Power Macintosh 7500/100, running WebStar server software, makes a formidable competitor as a World Wide Web server.

PLANNING FOR THE RIGHT WEB SERVER

Before you run out and assemble a server, you need to consider several important factors: the audience you intend to serve, the content you want to deliver, the Internet connection you can afford, and the minimum performance you need in order to succeed.

Who Is Your Target? As with other media, you're trying to reach a particular audience with your Web server. It could be current and prospective customers, business partners, like-minded interest groups, or even your competitors.

You should determine which of three kinds of visitors you're targeting: occasional visitors may browse your page lightly and never return; regular visitors may return to your page repeatedly to obtain some service, such as product information or technical support; frequent visitors, such as people in your own organization, may use your Web page as a regular part of their information-processing environment. If you expect only occasional visitors, you can get by with a much less capable Web server than if you offer order-entry services and real-time video. (For more on business strategies, see the feature "Stay on the Net," elsewhere in this issue.)

Sensitivity about Speed You should also consider the speed at which your audience will be connecting to you. Most home Internet users still connect via modems at the relatively slow rates of 14.4 to 28.8 Kbps. Small-business users frequently have medium-speed digital connections that range from 56 to 128 Kbps. Corporate users can often connect at speeds of 256 to 1544 Kbps or higher. Users on your local LAN will be accessing at 10 Mbps or even 100 Mbps.

This last group is an oft-overlooked audience. Web serving isn't just for the Internet; you can use in-house private Web serving to quickly roll out client-server applications and internal information-delivery systems. User-connection speed determines how powerful your server hardware and Internet connection must be, and how data intensive your content can be. Your Internet connection should be fast enough to accommodate two or more simultaneous users at the fastest user speed you expect. This means that two users can move data over the link simultaneously, even when several times that number of users actually are viewing the site. Most of the time those users will be reading the page, not moving traffic.

Content Matters The simplest Web page presents primarily textual information, with graphics incidental to the content. If your content falls into this category, you can expect to serve a great many users with very modest hardware and Internet speeds.

More sophisticated Web pages present integrated text and graphics, with important information contained in the graphics. You will need moderately fast hardware and Internet access, and you should expect to support fewer simultaneous users than you could with text-only content.

Some Web pages combine stock text and graphics with information retrieved from one or more databases. The Web server handles the task of querying the necessary databases and formatting the results for presentation to the end user as an HTML document. Such additional processing may not result in more information going to the user, and hence there's no need for a faster Internet connection. But it will require a beefier hardware platform to run Web-serving software and database software simultaneously.

The most sophisticated Web pages include the ability to deliver multimedia information, such as audio and video files. Such servers may require stand-alone applications to deliver a multimedia data stream in real time. For this application, you need hefty hardware and high-bandwidth Internet pipes.

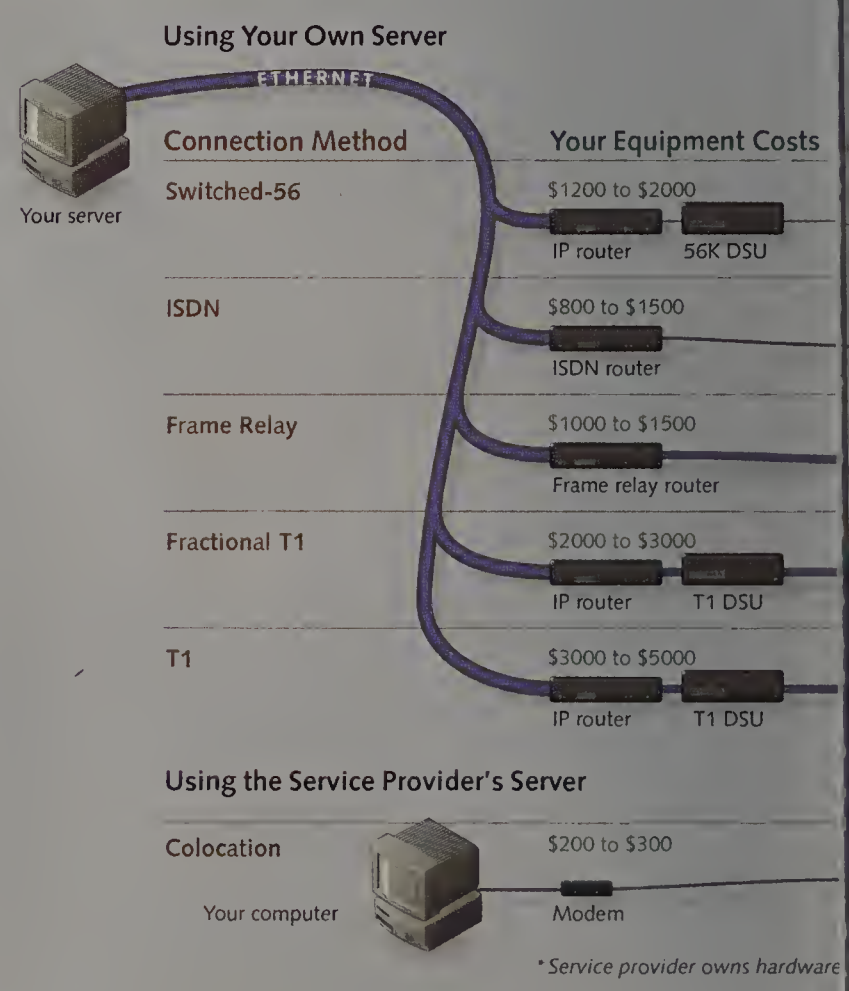
Connection Alternatives If money were no object, you'd get a 155-Mbps fiber-optic Internet connection and be done with it. But money is often a big object, and because your Internet connection fee is a recurring bill, connection speed will likely be the single largest cost factor you consider.

Today you can choose from a half-dozen Internet-connection methods, with varying trade-offs between cost and speed (see the diagram "Web-Connection Options and Costs"). The most important attribute of any Web connection is dedicated access. For your server to be continuously accessible to the outside world, your Internet connection must be up 24 hours a day, every day. The second most important attribute is connection speed. The minimum speed to consider is 56 Kbps, which requires a digital link of some sort. This rules out analog modems as an alternative.

Some low-cost switched (dial-up) digital links, such as Switched-56 and ISDN, incur usage costs from the telephone company, ranging from a penny per minute to long-distance telephone rates. These costs may make continuous connections impractical. For example, an ISDN connection at a penny per minute would cost $14.40 per day, or $432 per month. You could easily buy a nonswitched digital link for one month's costs.

A workaround is the *virtual dedicated connection:* your access provider automatically dials up your server whenever someone on the Web wants to look at your site. Digital call setup takes only a second or two, and the line can stay up until several minutes of inactivity have passed. Such a connection has the appearance of a

WEB-CONNECTION OPTIONS AN

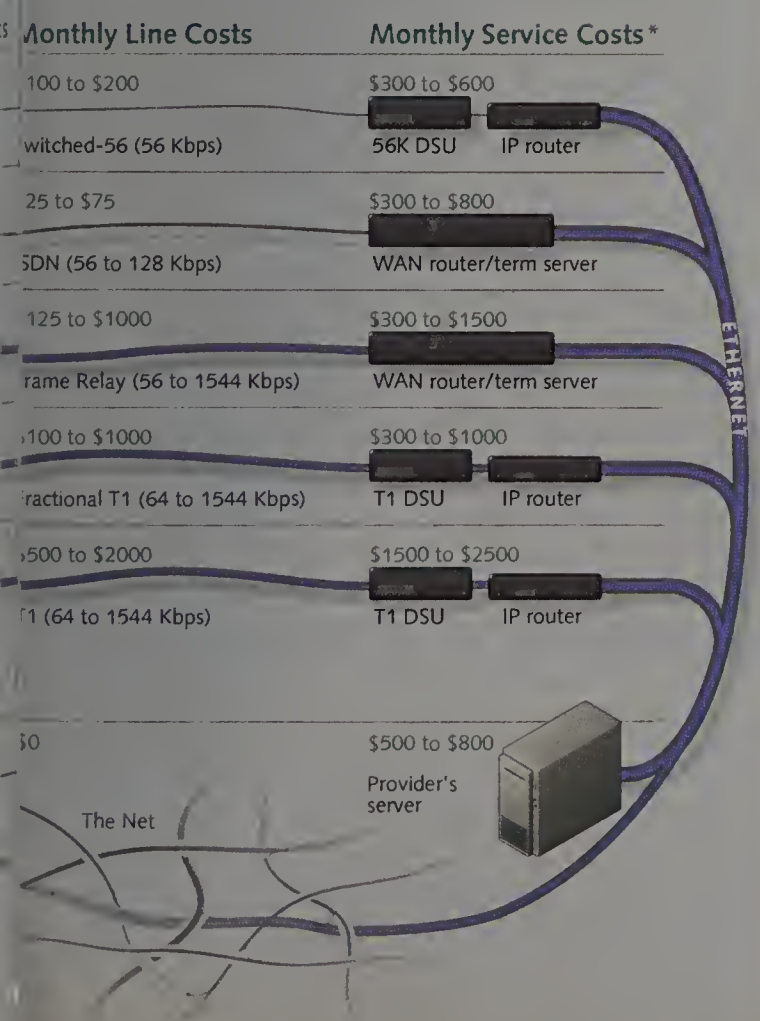


dedicated connection but incurs costs only when it's actually moving data.

Whatever connection you use, secure competent technical help for installation and configuration. Digital links can be difficult to get working, but once they're in place they're usually reliable and trouble-free. Most access providers include installation support in their start-up fees.

An alternative to buying your own digital connection is to place your server hardware on your access provider's LAN. Called *colocation*, this technique lets you share the access provider's high-bandwidth Internet connection (usually T1 or faster) while eliminating the fixed monthly cost of a digital link. The access provider still charges you for Internet access, usually by gigabyte of information your server delivers. Prices range from $10 to $50 per gigabyte. The disadvantage of this approach is the inconvenience of maintaining your server remotely. You have to run an FTP server application alongside your Web server for maintenance access.

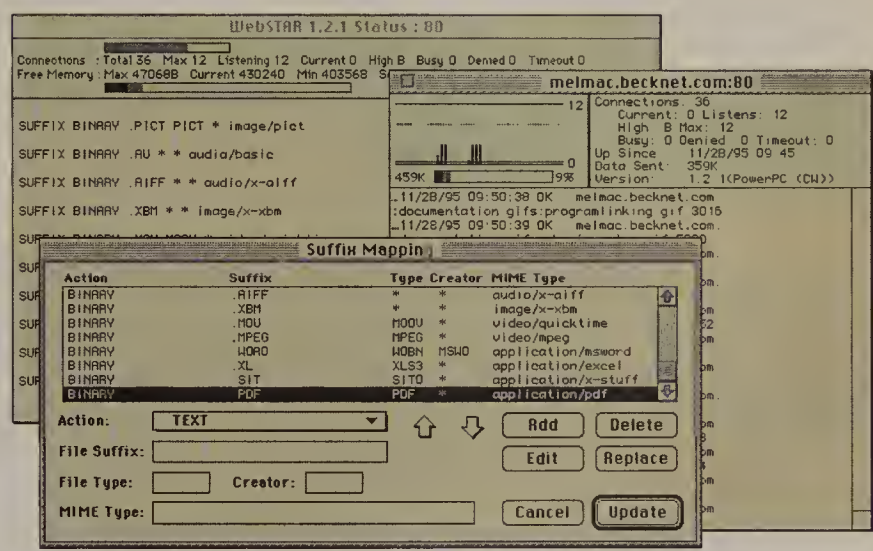
N:OSTS



Macs. Second, it supports only 64 simultaneous connections. Most server applications reserve some connections for other uses, reducing that number to 50 or fewer. This may sound like a lot, but modern Web browsers often open 5 or more connections to download text and graphics in parallel, so 50 connections translates to no more than 10 simultaneous users.

Open Transport Will Help Apple is replacing MacTCP with its new protocol stack, Open Transport, which runs native on Power Macs, has no connection limitations, and generally performs much better than MacTCP. However, at this writing Open Transport is having a troubled birth, with problems ranging from incompatibility with existing MacTCP-based applications to unreliable operation and system crashes. None of the currently available Mac Web-server products have been updated to work reliably with Open Transport, although all vendors say they will have Open Transport–compatible updates by the time you read this.

Apple's Integrated Solution An alternative to buying off-the-shelf software and hardware and building a server yourself is to use one of the Apple Internet Service Solution (AISS) bundles, which combine a selected Workgroup Server hardware



Server Control Center WebStar lets you remotely monitor and control one or more WebStar servers. In addition to providing real-time use statistics, including a traffic meter and traffic-history graph, WebStar lets you change any of a server's operational attributes, such as MIME types and suffix mapping.

package with a CD-ROM of Web-server software and utilities. The software includes Quarterdeck/StarNine's WebStar and a wide array of utilities. We did not test the current AISS offerings, as Apple will replace those products with new bundles in the near future.

Making the Connection The final platform issue you must settle is your physical Internet connection. For medium-speed digital connections, such as Leased-56, Switched-56, and ISDN lines, you can connect via your Mac's serial port to a data service unit (for Leased-56 and Switched-56) or to a terminal adapter (for ISDN). You must run a serial IP connection tool, such as MacPPP, to carry TCP/IP traffic to your access provider.

The serial-port approach may be inexpensive in the short term, as the hardware costs only $300 to $600, but can buy you problems down the road. First, unless you're running a Power Mac, your Mac's serial port likely can't sustain speeds in excess of 38.4 Kbps. Only Power Macs and some AV Macs have high-speed serial ports capable of 128 Kbps or more. You may not notice this problem until two or more users try to access your

server simultaneously. Second, even with a high-speed serial port, your Mac can get bogged down just handling the TCP/IP transport. A better approach to Internet connectivity is a stand-alone IP router connected via Ethernet. You need an Ethernet-capable Mac, but no special software. A router costs more—from $800 to $1500—but relieves your Mac of Internet-connection chores. A router can also provide automatic data compression, resulting in higher throughput, and can serve other machines on your LAN at the same time (see the sidebar "Planning for the Right Web Server").

Which Software Is Right?

OK, all your hardware ducks are lined up, and you're ready to go shopping for server software. There are choices here, too. You can go with shareware or a commercial product, a Mac-oriented product or one descended from Unix lineage. You can spend a little or a lot. It all depends on your skills and budget.

Consider Performance To see how Mac Web servers stack up against each other, as well as against the Unix competition, we tested all the servers on a Power Mac 7500/100 under MacTCP. We also set up and tested a comparable Unix system (a 66MHz PowerPC 601–based IBM RS/6000 Model 250 running NCSA HTTPd). The commercial Mac products all fared well, although not as well as the Unix product; under a load of five simultaneous users, the Mac servers slowed noticeably while the Unix box hardly took heed (see the benchmark "For Speed, Unix Is Champ").

The freeware and shareware servers suffered serious reliability problems under a five-user load, even when configured for the maximum number of users with 16MB of application RAM (httpd4Mac also failed with two to three users on the complex HTML document). They would crash unexpectedly when too many TCP connections were attempted. Of the commercial products, MachTen was fastest, followed by InterServer. WebStar ran nearly as fast, however, with much more polish.

Ease of Use If you're a Mac guru who loves to experiment, there are two shareware products on the market: Quarterdeck/StarNine's MacHTTP and Bill Melotti's httpd4Mac. Their names come from HTTPd, the HyperText Transport Protocol Daemon, which runs on Unix systems. Both products derive from the first widely available Unix Web server, the NCSA HTTPd, which we tested for comparison. True to their origins, these products get configured via Unix-style text files. There are lots of options to choose from, so the configuration files are large and confusing. If you make a typo, expect to spend a good deal of time diagnosing the problem; no friendly Mac-style error reporting here.

For Unix-at-heart Macintosh users, there are two extant versions of Macintosh Unix, Apple's A/UX and Tenon's MachTen. You should consider A/UX only if you're already running it for some reason (such as on an Apple server). But keep in mind that A/UX won't run on PowerPC hardware, so you're limiting your future expansion options.

If you just plain like Unix, but don't want to sell your soul

FOR SPEED, UNIX IS CHAMP

Mac servers tend to slow down with even a few simultaneous users, while the Unix server shows virtually no performance degradation even under the heaviest test load. This is likely due to the performance bottleneck imposed by MacTCP. Apple claims this bottleneck will disappear with Open Transport version 1.1. Our tests were not intended to stress each server to the breaking point; they looked at a moderate load (for Mac servers) of up to five simultaneous users continuously retrieving data. Two servers—MacHTTP and httpd4Mac—could not sustain even these moderate loads without crashing. Surprisingly, MacHTTP ran faster than its commercial descendant, WebStar, but speed counts for little if you don't survive the journey. InterServer was the fastest Mac server (aside from MachTen, which runs Unix on top of the Mac OS) but still showed significant performance degradation as the load increased.

Best in test. Shorter bars are better. All times are in seconds. Products are listed in alphabetical order.

Large-Graphic HTML Document

Time to download document with simultaneous, continuous traffic over one or two connections per user, including only one TCP/IP connection per user.

	1 User	2 Users	3 Users	5 Users
httpd4Mac freeware	13	16	20	*
InterCon InterServer	7	8	10	14
NCSA HTTPd (Unix)	7	7	7	8
StarNine MacHTTP	11	11	12	15
StarNine WebStar	12	14	14	16
Tenon MachTen	7	7	9	13

*Server failed.

Complex HTML Document

Time to download text-and-graphics document with simultaneous, continuous traffic over five or more connections per user, including at least five TCP/IP connections per user.

	1 User	2 Users	3 Users	5 Users
	15	*	*	*
	8	9	11	14
	6	6	6	7
	9	11	12	*
	9	13	14	16
	8	9	10	13

BEHIND OUR TESTS

For the Unix reference platform, we chose IBM's PowerPC-based 66MHz RS/6000 Model 250, because this system uses the same 601 PowerPC processor found in most Power Macs. We ran NCSA's freeware HTTPd server software because it's a popular package in the Unix world. We tested the Mac servers on a 100MHz Power Mac 7500 with 24MB of RAM and MacTCP.

Our test documents consisted of a set of HTML files containing text, graphics, and a mixture of text and graphics. We grouped the HTML pages by total size in bytes to form small, medium, and large test sets. We ran each server with one, two, three, and five simultaneous users running the Netscape Navigator 1.12 browser; we recorded the total time each test document took to download. We ran each test suite over a 10-Mbps Ethernet LAN, a 1.544-Mbps digital T1 connection, and a 128-Kbps ISDN connection. We found that performance was proportional between test sets of different sizes and over different network connections, so we report here only figures for the largest test sets, accessed via a LAN connection. We also found that performance for large HTML text documents is limited by the browser used, so we only report times for graphics-intensive and mixed-text-and-graphics documents.—**Macworld Lab testing supervised by Mel Beckman and Lauren Black**

SERVING UP WEB SERVERS

	Freeware	InterCon	Quarterdeck/StarNine	Quarterdeck/StarNine	Tenon
Product	httpd4Mac	InterServer Publisher	MacHTTP	WebStar	MachTen
Star rating [A]	★/1.4	★★★/5.2	★★/4.0	★★★★/7.3	★★★/6.3
List price	free	$795	$95 (shareware)	$795	$695
Phone	[B]	703/709-5500	510/649-4949	510/649-4949	805/963-6983
Common Gateway Interface	○	●	●	●	● [C]
AppleScript support	○	●	●	●	○
Apple events support	○	●	●	●	○
Open Transport capable	○	○	○	○	○ [D]
Configurable MIME types	●	○	●	●	●
URL suffix mapping	○	○	○	●	●
Access Security					
Realm control	○	●	●	●	●
Allow/deny control	○	●	●	●	●
Multiple Domains					
Multiple servers	○	○	●	●	●
Multihoming	○	○	○	○	●
Performance Controls					
Threaded execution	○	○	○	●	●
CPU usage	○	○	●	●	●
Other Protocols Served					
FTP	○	●	○	○	●
Gopher	○	●	○	○	●
Image maps	○	●	●	●	●
File aliases	○	●	●	●	●
Folder indexing	○	●	○	○	●
Access logging	●	●	●	●	●
Remote administration	○	○	○	●	●
Comments	Minimalist freeware: feature poor and unreliable.	Fast and functional, but missing key features and documentation.	Capable shareware, but unreliable under heavy load.	Polished, capable, reliable, easy to use, and reasonably fast.	Fast, but hard to use, requiring Unix administration skills.

● = yes; ○ = no. [A] Based on features, implementation, innovation, performance, reliability, ease of use, and value. (See Star Ratings section for full explanation.) [B] No phone; download from http://sodium.ch.man.ac.uk/pages/httpd4mac/home.html. [C] Can execute C and PERL programs or shell scripts within its own Unix environment. [D] Includes TCP/IP support that requires MachTen to be running before any other Mac TCP/IP application. Open Transport can be run simultaneously on a separate network card.

(or your Mac hard drive) to it, consider MachTen, which runs as an application under the Mac OS. MachTen consumes prodigious amounts of disk space (plan on 100MB) but comes with a built-in Web server (NCSA HTTPd). Although you configure the Web server with text files, just like any Unix server, because you're running inside a full-fledged Unix environment you can use all the same tools and accessories enjoyed by the big Unix boys and girls.

If you're not an expert and just want to get a reliable server up and running, go straight to the commercial products. At this writing two are shipping—WebStar and InterServer Publisher—and more are on the way from other vendors. You get reliable, easy-to-use products with telephone and electronic technical support, and more features than the shareware cousins offer.

Features You Need Speaking of features, price and support shouldn't be your only selection criteria. After all, you're spending a fair sum on hardware and Internet connectivity, not to mention the investment of time to get everything set up. Consider some features that might be important in your application, and make sure your server choice supports them (see the table "Serving Up Web Servers").

The most important feature, if you're planning on doing any back-end processing, is Common Gateway Interface (CGI) support. CGI lets your HTML document invoke Macintosh programs and scripts to process user information, such as a query request, and return results, such as a database extract. To their credit, the commercial products we tested all include sample CGI scripts, and you can find a wide range of others online. WebStar's excellent CGI library puts it above the competition, however. InterServer Publisher has CGI examples, but you have to go look for them, as the documentation has not a word on the subject.

Other important features are configurable MIME (Multipurpose Internet Mail Extensions) settings and URL suffix mapping. When delivering data to a browser, your server passes along the type of data—text, GIF or JPEG graphics, sound, video—so the browser can present the data appropriately. MIME settings and URL suffix mapping let you configure your server to support new kinds of data as they become available. For example, if you want to serve PDF files, you can establish a MIME type for Macintosh PDF files, or an URL suffix map for file names ending in .pdf, so that browsers are informed when

you're delivering a PDF file. WebStar and MachTen support suffix mapping, although WebStar is the only one with a GUI configuration interface with the feature. InterServer Publisher and httpd4Mac lack the feature.

Access security is another capability you should consider carefully. Servers with access security usually support one or both of the standard Web features, realm control and allow/deny control. With realm control, you organize folders and documents into groups called realms. You can create a list of authorized users and passwords and grant them access to particular realms. When users try to access a secured realm, their browser prompts them for a user ID and password.

In contrast to realm control's active protection, allow/deny control manages access passively, based on the user's IP address or domain name. This lets you control access at the server level, based on where the request originates. Both kinds of security controls are useful, and you'll probably want both. All the products except httpd4Mac have realm and allow/deny control, although WebStar and InterServer Publisher are the only products with a point-and-click security interface.

If you want your server to support more than one organization, two features—multiple servers and multihoming—will be important to you. Multiple-server support lets you run two or more copies of the server software on the same Mac. Users must access these servers through different TCP ports and must include the port number in their URL if it differs from the default of 80. For example, you might run a public server on TCP port 80 and a private server on port 5555. Users would use *http://www.yourcompany.com* to access the public server and *http://www.yourcompany.com:5555* to reach the private one.

WORLD WIDE WEB–SERVER SOFTWARE ACCESSORIES

Third-party vendors offer a wide range of utilities that complement Mac-based Web servers. For many specialized needs, these add-ons can be essential to the success of your Web site. Here are a few of the most notable to consider.

OpenDoor's HomeDoor ($279 through March 1, $399 thereafter; *http://www.opendoor.com/Home Door/HomeDoor.html*). OpenDoor brings HTTP multi-homing to any MacTCP-compatible Web server. This patch to MacTCP lets you assign an individual Macintosh up to 255 different IP addresses, and you can map those addresses to specific URLs in the server. This lets you support multiple, unique domain names of the form *www.companyname.com*, so that each name appears to have its own private Web server. HomeDoor only works with TCP port 80, the standard HTTP port, but OpenDoor says the company eventually hopes to support additional ports for servers such as FTP and Telnet.

Maxum Development's NetCloak and NetForms ($195 each, *http://www.maxum.com*). This duo extends your Web server by adding new HTML commands and letting users add content to your server. NetCloak adds some 30 proprietary commands that execute just before the server transmits an HTML document to a requesting user.

The commands let you include dynamic real-time information in a Web page and let you perform conditional tests to generate custom Web pages. Users enter data into forms you've created, and NetForms generates HTML pages from that data and stores those pages on your server, letting you archive threaded discussions or construct other interactive services as your needs evolve.

EveryWare Development's ButlerLink/Web (free, *http://www.everyware.com*). This freeware tool lets you create forms to query, update, insert, and delete records in a Butler SQL (structured query language) database. (It requires Butler SQL, also from EveryWare.)

Russell Owen's FileMaker Pro CGI (free, *http://rowen.astro.washington.edu*). This freeware tool offers forms-driven access to Claris's FileMaker Pro flat-file database. All of the database-configuration information remains stored in your HTML document; there is no need for ancillary files.

Foresight Technology's NetLink/4D ($189, *http://www.fsti.com/weblink.html*). This external package for 4th Dimension accesses 4D databases via CGI.

University of Minnesota's Web66 (free, *http://Web66.coled.umn.edu/*). This useful accessory is a World Wide Web cookbook full of useful techniques and downloadable utilities for Mac Web servers. You'll find step-by-step instructions for everything from soup to, um—well, you get the picture.

Jon Wiederspan's Mac WWW Development Guide (free, *http://www.comvista.com/net/www/WWWDirectory.html*). Another Web resource, this exhaustive collection of Mac Web pointers gives you one-stop shopping for everything Mac about the Web.

Full-Fledged Database Everyware Development's Butler SQL database server is a standards-compliant relational database with CGI tools for manipulating database records using structured query language from within your HTML documents.

GARY MOSS

The Unix Contender This 66MHz PowerPC 601–based IBM RS/6000 Model 250, running NCSA HTTPd, beat the Mac in speed tests—but at a high price in features and ease of use.

Multihoming lets you run servers with completely different domain names, such as *www.acme.com* and *www.coyote.com*, by giving each domain a separate, unique IP address. MacHTTP, WebStar, and MachTen all let you run multiple servers. Currently only MachTen, the Mac Unix server, supports multihoming, although you can add the capability to native Mac servers using a third-party product called HomeDoor (see the sidebar "World Wide Web–Server Software Accessories").

Performance Controls The last major feature set is performance controls. Because the Mac OS doesn't support preemptive multitasking, you may have problems running a server with many simultaneous users or with CGI programs executing in the background. Two features help here: threaded execution and CPU-usage limits. Normally, when a single HTTP request comes in for a particular HTML element (such as an icon), the Mac server must completely process that request before it can take the next one, slowing access for other users. The Mac OS now has built-in support for threaded execution, which lets a single application, such as a Web server, do more than one thing at a time. In this case, threads let the Web server accept and process HTTP requests in parallel. Only WebStar and MachTen support threads.

A related problem is balancing time between Web server and CGI program execution. It's possible for a Web server to hog the CPU so CGI programs get very little time to execute. The resulting glut of slow-running CGI programs can bog down the whole system. A server that can limit its CPU usage to a predefined value mitigates this problem, ensuring that CGI programs get enough time to execute quickly. MacHTTP, WebStar, and MachTen have this capability.

A slew of other features may or may not be important to you. Image map support lets you put clickable images in your Web pages. File aliases enable you to put Macintosh alias files into your Server folder to reference data elsewhere on that volume or on another mounted volume. Folder indexing automatically creates HTML indexes of whole folders to simplify serving many files. Access logging records every user transaction for later statistical analysis. InterServer Publisher and MachTen include add-on servers for FTP and Gopher. These are worthwhile additions if you are planning to set up a complete Internet presence.

Each product has its strengths and weaknesses. MacHTTP is feature laden and well documented, but fails under a heavy load, ruling it out as a serious commercial server. InterServer Publisher, while fast and functional, lacks important features, such as suffix mapping and configurable MIME types.

Bill Melotti's httpd4Mac is a valiant effort at minimalist shareware, but with virtually no features httpd4Mac can do little more than deliver simple Web documents. MachTen is actually an entire Unix implementation that happens to contain a Web server (NCSA HTTPd). Because it is real Unix with an embedded C compiler, it can run any Unix-originated CGI program in just about any language. Because MachTen has its own TCP/IP stack that replaces both MacTCP and Open Transport (with good results), it supports multihoming. But don't even consider MachTen unless you have some basic Unix-system–administration skills.

WebStar is a polished product with a rich feature set. It delivers on everything it promises: complete, clear documentation; point-and-click configuration; and a knowledgeable, focused telephone technical-support staff. Hence WebStar deserves our Editors' Choice designation.

The Last Word

So is the Macintosh ready for prime time in the Web-server market? Most certainly. A Macintosh-based Web server is economical, easy to set up, and relatively simple to maintain. The Mac's native AppleScript and Apple events enable you to build powerful back-end processors for delivering complex content.

Is the Mac the ultimate Web-server platform? No. The lack of preemptive task switching and limitations in TCP/IP implementation put the Mac well below the performance level of Unix-based Web servers for now (though once it fully supports Open Transport, the Mac should finally leave performance inferiority behind). But if your site doesn't need to serve dozens of users simultaneously, the Mac's attractive price and ease of use make it a great choice. **m**

MEL BECKMAN (*mel@becknet.com*), a consulting network engineer, sets up new Internet service providers. He regularly evaluates Web servers for Mac, PC, and Unix systems. Look for his experimental Mac-based Web server at *www.becknet.com*.

WEB SERVER SOFTWARE

Speed is a key Web-server attribute, but it's useless without a broad range of features and ironclad reliability.

★★★★/7.3 **WebStar** It isn't the fastest Mac Web server we tested, but it has important features other servers lack: suffix mapping, file aliases, Apple events, remote management, multiple-server support, and threaded execution. WebStar's good performance, features, and reliability offer a winning combination. **Company:** Quarterdeck/StarNine. **List price:** $795.

STAY ON THE WEB

MAKE YOUR INTERNET SITE PAY OFF

Who would have thought that the anarchism of the Internet would prove so attractive to corporate America? The Net is as raw as any frontier—difficult to regulate effectively, unpredictable, and fueled by idealism and the spirit of exploration. Still, the lure of profit has turned tens of thousands of small entrepreneurs and mainstream, conservative businesses alike into virtual homesteaders, prepared to absorb losses today to harvest big rewards in cyberspace someday.

What does the Net offer business right now? Not a developed market, but attractive market potential. Not a polished sales channel, but a rough and powerful system that can be shaped to fit a variety of needs. In a leaner, harder global economy, the Internet is a new conduit for communications—it thrives on the entrepreneurial energy behind many dynamic companies. Bringing your business to this global network extends your reach and gives you access to a wealth of information with relatively inexpensive technology.

But turning promise into productivity and profits just isn't as easy as plugging your LAN into the Internet or setting up a Web server. To integrate the Internet into your business, you need a cohesive approach that fully maximizes your chances to improve on your investment.

The framework for success varies from company to company and is in a state of constant flux, but a wide range of businesses have begun to understand how a combination of automated E-mail and effective Web sites can help a company reach new customers, stir up interest in its products and services, and even ultimately reduce its overall workload.

Start with Automated E-Mail

Because it is easy, fast, cheap, and efficient, automated E-mail is usually a good place to start your business Internet presence. Similar to a fax-on-demand system, an automated E-mail server generates an instant response, sending product or service information directly to your customers. E-mail is cheaper than a long-distance phone call, it is more flexible than a fax, and it allows you to send in seconds a 150-page document that might otherwise have required FedEx delivery. All these things save you money and can create a strong online presence that encourages interaction and a more responsive business environment.

BY MATTHEW HAWN

This service can easily be arranged by your Internet server provider (ISP). Or if you already have your own server, look at ListStar, from Quarterdeck/StarNine Technologies (510/649-4949, *info@starnine.com*; $499 for SMTP version, $199 for POP version). WebStar, the company's Mac Web server software, combined with ListStar, provides the easiest and most effective solution for Mac-based Web servers (see the feature "Get On the Web," elsewhere in this issue). It's a relatively simple matter to update information quickly, add more E-mail addresses, and get timely information to your customers 24 hours a day.

The biggest drawback to E-mail servers is the way your information is displayed. You are limited to plain text, and you can't offer graphics easily. E-mail bounce-back doesn't offer the flexibility of a good Web page. Once the exclusive playground of the technically adept, the Web is coming to the desktop, in

much the same way that publishing did in the mid-eighties (for a primer on Web publishing, see "Build Your Own Home Page," *Macworld*, November 1995).

Web Advertising and Marketing

As appealing as automated E-mail can be, it barely taps the Internet's potential as a way to communicate and build a business. For big companies, a corporate Web site is becoming a business necessity, while small companies are beginning to realize the Web's potential to reach new customers and even to compete more effectively against larger companies.

A Web page is accessible from networks all over the world, 24 hours a day. Thanks to HTML's simple standards, the Web reaches most users, without regard to platform. You can also factor out major distribution expenses, such as for printing and mailing, reducing your overall expenditures as well.

The key to a successful Web site involves combining easy navigation and attractive graphics with interaction, and spicing up your image with enticing premiums or novelties to keep customers coming back again and again.

Godiva Chocolatier offers a good example of the current state of advertising on the Net. The Godiva Online Web site (*http://www.godiva.com*) offers online shopping via a digital catalog, product descriptions, and information on the company's many stores all over the world. This material simply mirrors the company's print catalogs, but the site also offers recipes and stories and a clever E-mail–based gift-reminder service that can prompt you to buy truffles for your sweetheart two weeks before Valentine's Day. Godiva collaborated on the design and implementation of the site with a contractor that updates the message and handles the mechanics of the site with a staff of three to four people at any given time.

The Web has the potential to reach an extremely lucrative demographic audience: most surveys suggest that people who browse the Web are well educated and have lots of disposable income. Even if you never intend to sell online, you can reach many customers who are likely to buy your products offline. While Godiva realizes no profit from direct sales online, the company attributes a marked increase in in-store sales to the Web site.

Nolo Press publishes self-help legal books and software, a market that has traditionally relied on printed catalogs to sell products. Nolo now runs a Web site that publishes in-depth features and news to complement and enhance its offerings. The company recognized that its audience closely parallels the developing demographics of the Web—well educated, do-it-yourselfers—and that a simply designed site, rich in legal information, would stimulate interest in the company's books and software. A small staff (one full-time person and three part-time people) manages the Web site and online areas on eWorld (shortcut: *Nolo*) and America Online (keyword: *Nolo*). Like Godiva, Nolo has yet to break even on its investment in the Internet, but the company has been encouraged by the steadily increasing number of orders that it takes over the Internet and views the site as a successful marketing tool that will eventually develop into a significant profit center.

Making Your Web Site Effective

A good Web site can open up a whole new market for you, but remember, increasingly the opposite is also true. A poorly designed site can drive people away in droves. The Web is a new kind of medium. What works in print or television may fail abysmally online. A good Web site is not unlike a successful piece of software: both need an intuitive interface, a coherent design, and absolute reliability.

Not surprisingly, software companies have some of the best-designed advertising sites on the Internet. Berkeley Systems' Web site, Toasted (with reference to the company's flying-toasters screen saver, *http://www.berksys.com/*), offers graphics and current information on the company's products, plus customer support, downloadable demos, and free software. Toasted was designed in-house, and a part-time staff of eight maintains the site in addition to doing other jobs at the company.

The site's strong visual sense matches the company's products and aesthetic while taking some chances with new technology to stand out from the crowd. For instance, Toasted recently produced a 1940s-style radio show called Toast Opera with a

TEN STEPS TOWARD A SOLID NET PRESENCE

To stand out from the hordes of businesses arriving each week on the Internet, you need to create a strong online presence. While akin to image advertising, which attempts to create a personality for your business, a company's Internet presence should do more. To gain the respect of people who use the Internet, your business needs to participate and interact with the Internet's culture and accepted practices. And your site should reflect that. Here are ten steps that will help you get started.

1. Encourage interaction. Include E-mail addresses and forms for suggestions, kudos, and complaints. In some cases, it may even be appropriate to post visitor responses in an area of your Web site. Be sure to respond within 48 hours, even if it's just to say that you received the message.

2. Start small and grow. Trying to create an epic site in one fell swoop can make your site feel prefabricated and false. Let it grow and find its own shape gradually.

3. Dedicate adequate resources. The Web is an ongoing project and requires cultivation and dedicated staffing. An unresponsive or unreliable Web site is worse than no Web site at all. The Web is a 24-hour service and most sites need three to four regular (though not necessarily full-time) gardeners, including a technician to tend the Web server.

4. Foster personality. Remember the people behind your site. Personal pages are some of the most commonly hit pages on business sites. They give your venture a human face.

5. Surf early and often. Take the time to explore the Net and learn its history and customs. Encourage your staff to be active in online forums that relate to your business. This can help build your reputation online. When posting to newsgroups or responding to E-mail, your staff should include your firm's Internet address(es) as part of their signature.

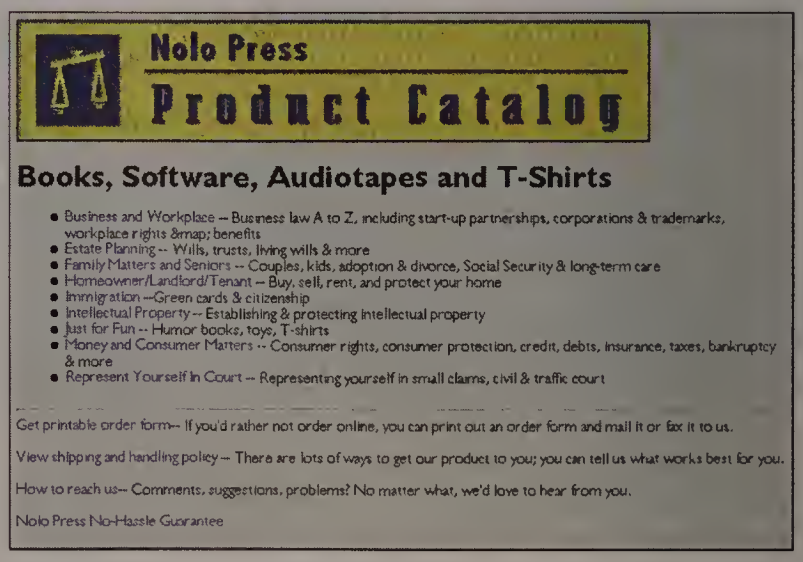
6. Contribute to the Web's interconnectivity. Add value to your site by providing links to other Web sites that relate to yours. If you sell fishing lures, link to a page that details the National Parks' best fishing spots. The owners of those sites may in turn link to your site, generating more traffic.

7. Respect your visitors' time. Most people make online connections from home via a 14.4-Kbps modem, so keep your site's graphics small and easy to download. Expedite visitors' ability to find what they want at your site with good navigation and search tools (see the screen shot "Text-Only for Fast Loading").

8. Update your site regularly. Web pages are always under construction; viewing them as works in progress increases the creative dynamism of your site. Elements that change regularly—a joke of the day, or offer of the week—will increase your online traffic.

9. Sponsor contests and online-only promotions. A sure way to attract more visitors is to give things away. A monthly premium, free promotional materials, and special online sales can greatly increase attention to your Web site. Make your contests interactive and fun—ask visitors to answer trivia questions or write a short E-mail essay, for example.

10. Make your Web site URL as commonly known as your phone number. Promote your site address on your business cards and advertising. You can do this online by registering your site with Internet directories, such as InfoSeek (*http://www.infoseek.com*), Yahoo (*http://www.yahoo.com/*), and WebCrawler (*http://webcrawler.com*).



Text-Only for Fast Loading Nolo Press (*http://gnn.com/gnn/bus/nolo/*) uses a simple—mostly text—design that loads quickly even at 14.4 Kbps. It's organized by subject, and the lower half of the screen features links to ordering, policies, and contact information.

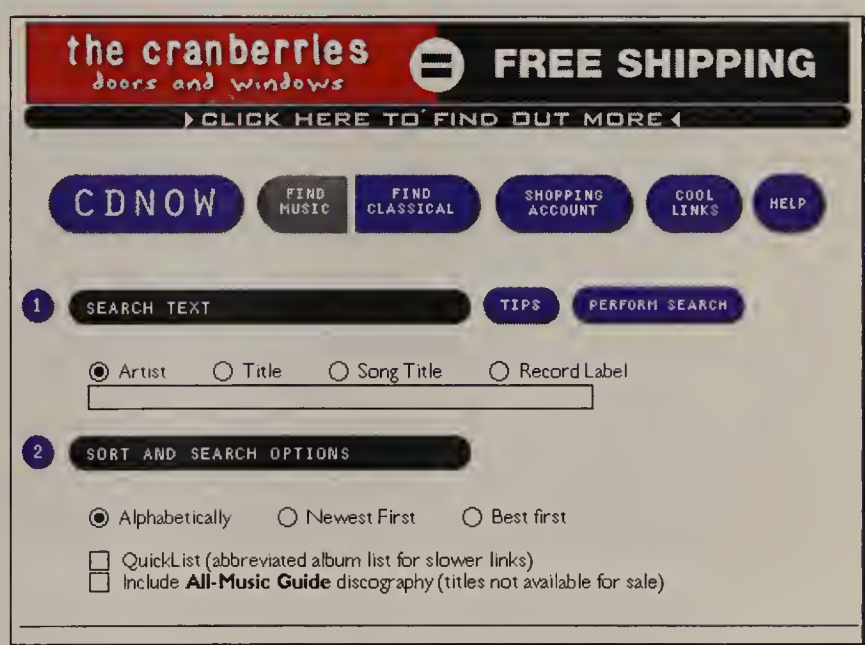
serialized story in streaming digital-audio formats like RealAudio from Progressive Networks (206/447-0567, *support@prognet.com*; prices vary) and TrueSpeech from the DSP Group (408/986-4300, *webster@dspg.com*). Such clever and original content keeps visitors coming back.

Experimenting with the Web can be a great way to learn about this new medium, but you should judge the value of new technology like digital-audio radio in the context of your business, not only for its gee-whiz factor. Choose the technologies that complement your business. If you sell toothpicks to restaurants, it probably doesn't make a lot of sense to bother to provide digital-audio files on your Web site. On the other hand, for a publisher of books-on-tape, an audio component could be a tremendous selling point. Sample clips from your best-sellers or your new titles could draw repeat visitors who want to stay up-to-date.

When Hot Hot Hot, a small store in Pasadena, California, decided to advertise some of its spicy foods online, it worked with a contractor to create a fun Web site. The interface is bright and colorful, matching the store's style, while allowing visitors to view the products in variable layouts (see the screen shot "Spicy Views"). In addition to online shopping options, Hot Hot Hot runs contests and includes E-mail links for customer feedback. The company uses that feedback to make changes in its product offerings—recognizing the Web's capacity to provide instant and continuous marketing data about what works and what fails.

Another potential benefit of an Internet business site is the ability to gather information about your customers via surveys and contests. But be careful. The Internet community frowns on unsolicited advertisements and even perceived breaches in privacy. Selling your E-mail mailing lists to others or sending promotional E-mail can get you into trouble fast with customers or even bring on a deluge of flames. Surveys and feedback forms that respect your visitors' privacy, however, can help you get good information on the services that your customers want. Consider surveys that don't ask for detailed personal information, and always be very clear and open about what you intend to do with the information you gather.

Spicy Views Hot Hot Hot Online (*http://www.hot.presence.com/hot/*), an online catalog dedicated to hot, spicy food and chilies, run by a small retail shop, offers flashy graphics and multiple views of product information to draw customers in.



Easy Search Tools CDnow's (*http://cdnow.com*) search interface allows fast and straightforward searches for the company's CD titles by artist, CD title, song title, or record label, and sorts the results according to your tastes. The results are then hyperlinked to more information and graphics that relate to the topic.

From Sales to Profits

These techniques work well to build awareness of your products and communicate with customers, but be realistic about your investment. Few companies have figured out how to sell products online, possibly because few consumers have become comfortable buying online as yet.

Bear this in mind as you develop your Web business plan: it could take quite a while to recoup initial costs. Techniques for connecting your business to the Internet vary widely. If you choose to host and maintain your own server, look to spend anywhere from $5000 to $20,000 on hardware, including the server, router, and extra RAM. Setting up an Internet connection runs from about $1000 to $5000, plus monthly line costs of $100 to $2000, depending on the speed of your connection (see "Get On the Web").

Some ISPs offer colocation services for Internet servers, which cost about $1000 to set up, with monthly fees from $1000 to $2000 for access to T1 connections. You lose a lot of flexibility with a colocated server and have to rely on remote access to make most changes to your site.

If you don't have a Web expert on staff, expect to pay consultant fees of $100 or more per hour. At start-up, consulting fees will range from a few thousand to tens of thousands of dollars as you design the information structure of your site. Designers who understand the graphics needs of the Web will charge similar fees.

And while Macs have an inherent security advantage over more-open Unix systems, if you plan to put sensitive information on a Web server that's accessible over the Internet, add the cost of a security consultant who can help you protect your data from prying eyes.

In the long run, your largest expense will be staffing. A large,

multifaceted site requires at least one full-time employee and two to three part-time staff to help with updating and maintenance. Experienced Web masters are paid anywhere from $30,000 to $80,000 per year.

So it's easy to see that crossing over to profits after these expenses can take a while. Most companies with a Web presence view it as a long-term investment in a new market or as a worthwhile marketing venture. As they gain experience and build their Web reputations, they expect profits to eventually follow. Others are content to treat the Net as an electronic newsletter for the time being, experimenting with this new medium's rhythms and patterns.

A handful of companies have taken the plunge and are investing in the Web as a primary sales channel. CDnow, one of the first companies to set up a virtual storefront on the Internet, sells compact discs, videos, and other music products. Key to its strategy is a searchable database of nearly 200,000 products located in four different warehouses. Equally important is the flexibility of CDnow's interface, which displays search results by artist, genre, or title (see the screen shot "Easy Search Tools"). CDnow adds value to the service by including a music guide and a regularly updated online magazine that encourages shoppers to learn about the artist and the genre. CDnow has a staff of 14 people; 4 of them are dedicated to design and programming for the Web site. The company is so confident in the growth of the Web that it plans to nearly double its staff in coming months. CDnow is also one of a handful of companies willing to invest in advertising links on other Web sites to increase traffic and, hopefully, sales.

The Last Word

A successful Internet presence, like any successful business, starts with a solid plan. Many businesses launch a Web site without the resources to support its maintenance and growth. First decide why you want to be on the Net and what resources you can dedicate to your Web site. Be modest at first but build your system for easy growth.

The most thoughtful business plans also exploit the Web for internal company use. Focusing inward, a rapidly growing number of companies use in-house Web sites as an extension of their LANs and WANs, in pursuit of alternatives to more expensive options like Lotus Notes or inadequate office E-mail products. Using HTML and the basic Internet mail protocols as core technologies, these companies are experimenting with shareware and inexpensive Web browser software to distribute hyperlinked human-resource documents and training materials (like interactive job listings), while providing a centralized site for electronic data. And software developers are taking notice. With its recent purchase of Collabra Software, a collaborative-discussion company, Netscape Communications is aiming squarely at the groupware market, and you can expect other entries into this new software market later this year.

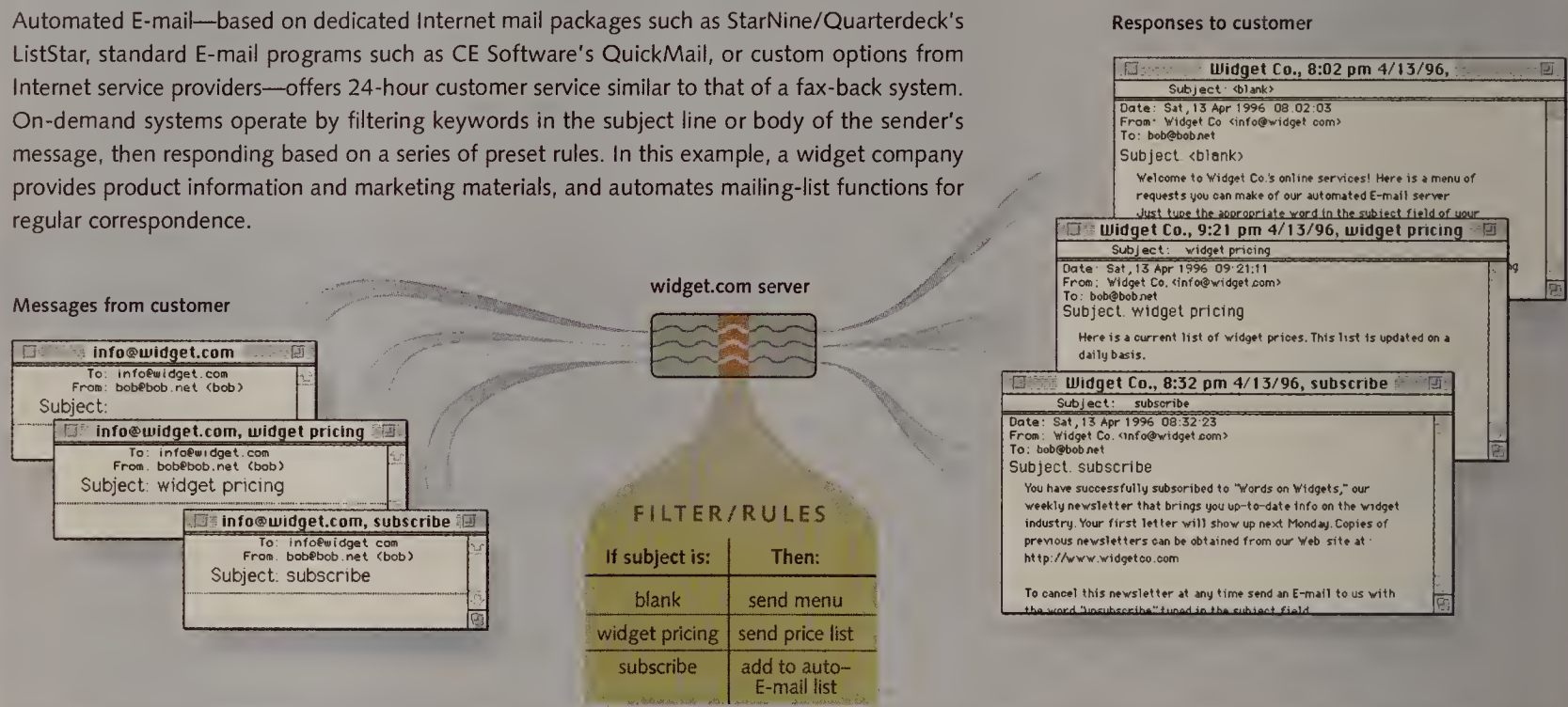
With few exceptions, the most successful business sites on the Net are sticking to basic HTML and eschewing the Netscape and Microsoft extensions to the 2.0 HTML standard (see the *NetSmart* column elsewhere in this issue). By doing so, these sites reach a wide audience on all platforms.

In the end, the most savvy companies using the Internet have developed their Net presence organically, learning and adapting to this rapidly changing medium. They budget high enough to show a solid Web presence and weather the frustration of evolving technologies and standards. And they'll be among the first to reap the Web's rewards. **m**

MATTHEW HAWN (*matthew@www.macworld.com*) is production editor for Macworld Online and produces Radio Macworld and GameLine for the Macworld Web site.

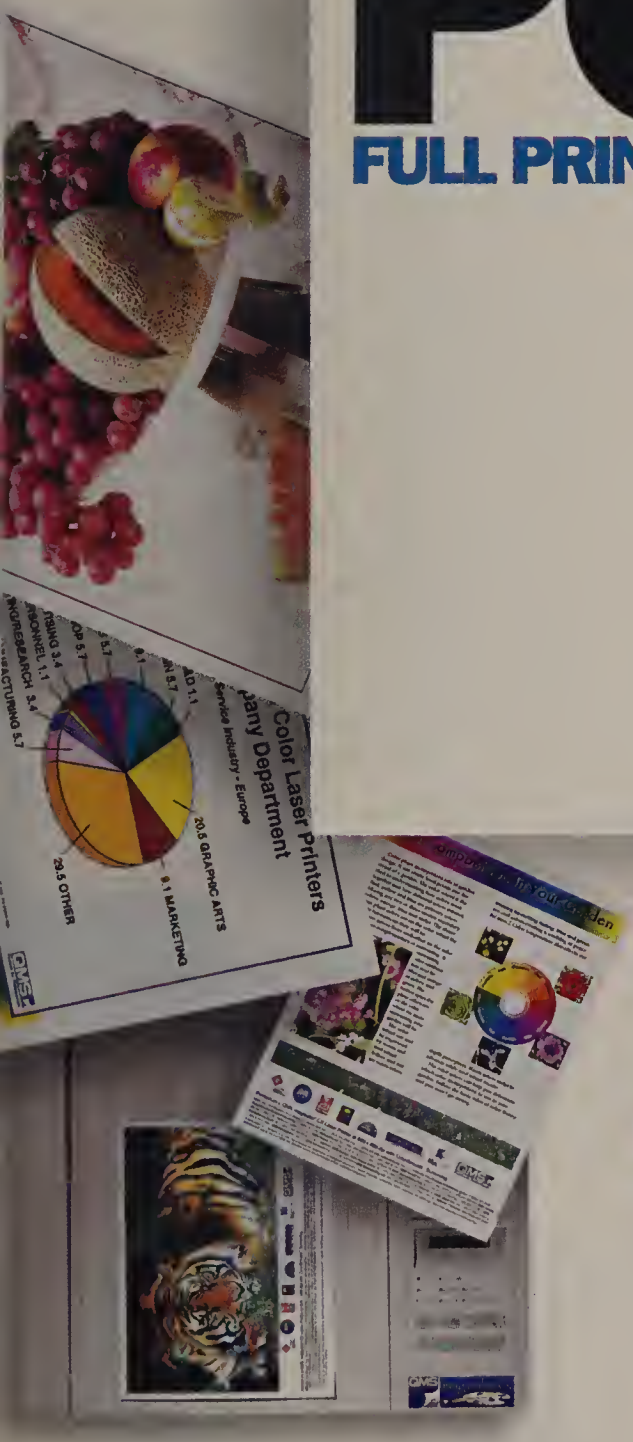
E-MAIL ON DEMAND

Automated E-mail—based on dedicated Internet mail packages such as StarNine/Quarterdeck's ListStar, standard E-mail programs such as CE Software's QuickMail, or custom options from Internet service providers—offers 24-hour customer service similar to that of a fax-back system. On-demand systems operate by filtering keywords in the subject line or body of the sender's message, then responding based on a series of preset rules. In this example, a widget company provides product information and marketing materials, and automates mailing-list functions for regular correspondence.



POWER
FULL COLOR
POWER
FULL NETWORKING
POWER
FULL PRINTING

Actual sample printed on the QMS magicolor CX Laser Printer



The QMS® *magicolor* CX Laser Printer • From $5799* 600x600dpi with Microfine Toner • Letter & Legal 6ppm/Color • 12ppm/b&w • CrownCopy™ Copier Option • Network-Ready • Serverless Printing

Add this powerful color laser printer to your business. The power to bring documents and images to life. In crisp b&w and vivid color. From any platform. Any protocol. By anyone on the network. The QMS *magicolor*® CX Laser Printer—available in 8, 20 and 32 MB versions—starting at $5799. Make your next statement a powerful one. Call QMS today for your FREE "Network Printing for Professionals" Interactive Disk
800 392-7559 Dept. **5097.**
Internet: **http://www.qms.com/**

QMS®
Printers for Professionals.

For service on QMS or other products, call 800 762-8894 (U.S.) • Q-Fax 800 633-7213 • Canada 800 991-2000 *QMS Reference Price (U.S.) QMS, the QMS logo, *magicolor* and CrownCopy are trademarks or registered trademarks of QMS, Inc. One Magnum Pass, Mobile, AL 36618, 334 633-4300. © QMS, Inc. 1995

Circle 288 on reader service card

Are you getting the performance out of

New Back-UPS® Pro™ increases productivity and peace of mind.

LIFETIME EQUIPMENT PROTECTION

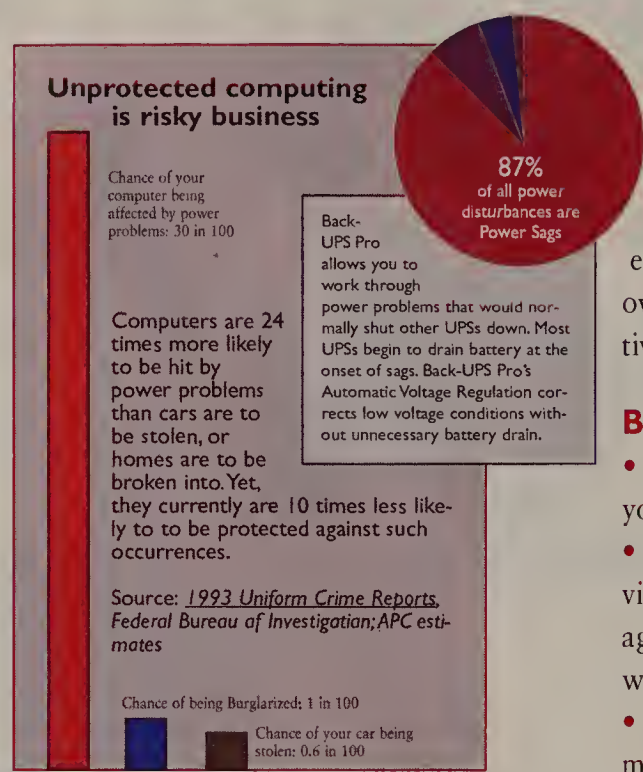
$25,000

FOR AS LONG AS YOU OWN THIS PRODUCT, IF YOUR PROPERLY CONNECTED EQUIPMENT IS EVER DAMAGED BY AN AC SURGE, INCLUDING SURGES DUE TO LIGHTNING, APC WILL REPAIR OR REPLACE OUR PRODUCT AND UP TO $25,000 OF CONNECTED EQUIPMENT (SEE POLICY FOR DETAILS. VALID IN U.S. AND CANADA ONLY).

If you're using a computer, few things are more certain or more discouraging than power problems. If you haven't yet lost productivity and data to a blackout, crashed a hard drive, or toasted a modem, you will. It's almost a statistical certainty.

More than 4,000,000 smart computer users protect against the inevitable with affordable: award winning power protection from APC. One prevented problem is all it takes to pay for proper power protection many times over.

Back-UPS Pro, protects all power paths leading to your Mac, keeping your equipment safe from power events including surges, swells, brownouts, and blackouts - and keeping you safe from downtime that power problems inevitably produce. Back-UPS Pro provides high-performance workstation protection, preventing data loss, increasing your system's lifespan, and improving productivity.



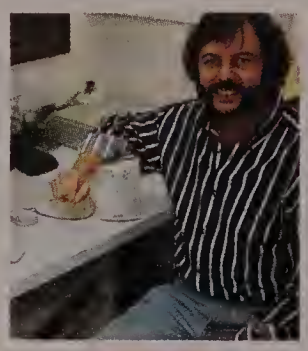
Unmatched Protection With Automatic Voltage Regulation

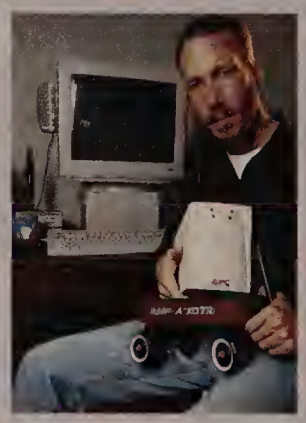
A study by Bell Labs indicates that 87% of all power disturbances come in the form of a power sag, or "brownout." Most UPSs begin to drain battery at the onset of sags, giving you a few moments to shutdown your computer. Automatic Voltage Regulation allows you to work through power problems by increasing voltage during brownouts and decreasing voltage during surges without draining battery power. In environments where chronic brownouts and overvoltages are the norm, the line-interactive Back-UPS Pro is essential.

Back-UPS Pro UPSs Feature:

- Instantaneous battery backup to protect your data against a total loss of power.
- Automatic Voltage Regulation (AVR) provides the edge you need for full protection against extended brownouts or overvoltages without draining the battery.
- CellGuard™ intelligent battery management dramatically extends battery life with fast recharge and deep discharge protection. Battery diagnostics warn you before problems occur.
- Batteries are quickly and safely user-replaceable without needing to shut your system down. (Batteries last 3-6 years under normal use).
- $25,000 lifetime repair/replace guarantee against surge damage to your equipment (see details).
- Built-in phone line/10Base-T network cable surge protection for a bulletproof response to anything Mother Nature sends in your direction.

So don't wait for the school of high shocks to teach you an expensive lesson about Mac performance. Ask for APC today.





More than 4,000,000 satisfied users say "Protect Me! with APC"

CLOCKWISE: "After 13 plus years in the computer industry (with both Apple and Digital), I have changed directions and now live in the Santa Cruz mountains, where the power is as bad as the view is beautiful," says Harald Striepe. "Now I spend most of my time consulting and writing fiction. The power is the worst during rainy season and brownouts are a daily occurrence. But, not a problem for me since I got my Back-UPS Pro with AVR - now, I work through the rainstorms."

"I am the Product Development manager for Radio Flyer," says Antonio Pasin. "But quite often, I work at home, where I pay for all the equipment....my TV has been zapped in the past (it turned GREEN!). Here, I don't have an extra $1200 to replace the DAT tape backup...an investment in APC is more cost effective for me. But besides just protecting the hardware, I look it it as protecting my media...I have lots of time invested in my data, and Back-UPS Pro protects that os well. Not to mention the unit is well-designed, easy to use, and APC provides great customer service to boot."

"I am a graphic designer/illustrator, using mostly 9500/132 and 8100/80 PowerMacs, in central Florida, the lightning capital of the world," said Thomas Sessions of Sessions Design in Orlando. "We lose power on a weekly basis and have constant outages....I've used APC for at least 8 years, but Bock-UPS Pro is my current favorite - it has a smaller footprint and I can plug in my modem. Before UPSs, when we heard a thunderstorm, you would just hurry and try to get the work done, then just shut down- unplug the machines and take a break.....now I wouldn't work without one....particularly in this deadline oriented industry."

Visit APC's PowerPage™ on the WorldWide Web at http://www.apcc.com

Almost Your Mac?

"Ultimately, it's more a question of when - and not if - you should buy a UPS... UPS power protection has never been cheaper or more convenient"

MacWEEK

"If you have a server and don't have a UPS, you're playing with fire."

MacUser

"★★★★...Should be standard equipment on every desktop... effective, affordable, designed to last."
- *PC Computing*

"99 out of 100"
- *Computer Gaming World*

"Don't take chances. Get the ultimate protection... from APC."
- *PC World*

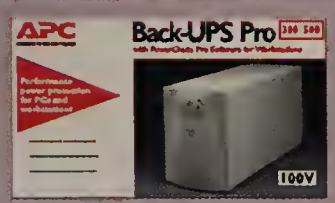
Available at:

COMPUSA THE COMPUTER SUPERSTORE

COMPUTER City

Choosing the Right APC Protection

For advanced Mac protection including Automatic Voltage Regulation, CellGuard battery management and phone line/ 10Base-T protection, choose the Back-UPS Pro. For longer run-time choose a higher VA rating. For basic Mac protection choose from the Back-UPS® family.



Back-UPS Pro: Advanced Mac Protection
Perfect for PowerMac

Model	VA Rating	List Price
Back-UPS Pro PNP 280	280	$199
Back-UPS Pro PNP 420	420	$339
Back-UPS Pro PNP 6S0	6S0	$419
Back-UPS Pro 1000	1000	$589
Back-UPS Pro 1400	1400	$7S9

Back-UPS: Basic Mac Protection
Perfect for Performa

Model	VA Rating	List Price
Back-UPS 200	200	$119
Back-UPS 280	280	$139
Back-UPS 400	400	$199
Back-UPS 4S0	4S0	$2S4
Back-UPS 600	600	$359
Back-UPS 900	900	$529
Back-UPS 12S0	12S0	$689

APC products have won more awards for excellence than all other brands combined. Call for a Free 60-page Power Protection handbook.

APC®

AMERICAN POWER CONVERSION

800-800-4APC

Dept D7
fax: 401-788-2797 / PowerFax™: 800-347-FAXX
CompuServe: GO APC SUPPORT
Internet: apctech@apcc.com
132 Fairgrounds Rd., W. Kingston RI 02892 USA

US/Canada: (800)800-4APC Europe: (+33)(1)64.62.S9.00 Latin America: (401)789-5735 Asia /Pacific: (81)(3)529S-1988

Circle 72 on reader service card

The Right Tools for the Job

MACWORLD

EXPERTS PICK THE BEST PRODUCTIVITY BOOSTERS

HAVE YOU EVER FOUND YOURSELF WITH FIVE Phillips screwdrivers when what you really needed was a flathead? The old cliché applies with tools: a miss is as good as a mile. And that goes for utility software too. Without the right utility, what should be an easy job can be an onerous—even impossible—task. Having the correct utility is like hitting the nail on the head after years of bent brads and bruised thumbs. The right utilities allow you to work faster, work more efficiently, and save money in the process.

To help you find the best power tools for your work—whether it's business, publishing, graphics, online access, or all of the above—we tested scores of utilities, all highly recommended by *Macworld* experts, to come up with 24 most likely to ease your workload. They range widely in price, but most are inexpensive (usually less than $100). Most occupy little space on your hard drive and don't require much in terms of RAM. Most are straightforward and easy to use—in some cases, installation is the last time you'll deal with them. Virtually all are available in stores, catalogs, or online shareware libraries. What we like best about all of them is that they provide power and convenience well in excess of their modest proportions.

Working on a Mac without a well-chosen set of utilities is a little like using a power tool with the electricity turned off—you probably can do it, but why would you want to try? Tell your bean-counters that investing in the right utilities can raise productivity and reduce costs—and use these tools to prove it to them.

BY ROBERT C. ECKHARDT

Universal Utilities

PART I: THE WAY YOU WORK

Some utilities make sense to have, no matter how you use your Mac. Some of them change the way your Mac works—and the way you work with your Mac.

Conflict Catcher System 7.5 has been known to install over 100 start-up files (extensions and control panels) in a standard installation. Add a few favorite third-party start-up files and hold onto your hat. Crashes, erratic behavior, and other abnormalities are a distinct (and distinctly unpleasant) possibility—unless you use Conflict Catcher 3, the answer to an extension addict's (certainly *this* addict's) prayers. Conflict Catcher allows you to turn start-up files on and off, change the order in which they load, view information about each one, and organize your start-up files into sets for different tasks. At start-up, Conflict Catcher tells you which set is loading, identifies your start-up icons by name, and allows you to interrupt the start-up process if you want to install a different set. It also automatically turns off files that bomb during start-up and can help you determine which stealth start-up file is causing a blip on your radar screen.

Now Utilities Two Now Utilities modules are another addiction of mine. The NowMenus module creates standard or pop-up menus containing recently opened or often-used documents, applications, even entire menu bars. It allows you to add or change the key commands (and see your changes displayed) in the menus of most applications, and its "sticky" menus open automatically when the pointer passes over them. The Super Boomerang module adds lists of all recently accessed files and folders to the Apple menu and to the Open commands of your applications. Conveniently, it also automatically highlights the last opened (instead of the first listed) file or folder in the Open and Save dialog boxes. Together these modules add a major collection of minor time-savers that really add up.

DragStrip Launchpads are very popular these days, and for my money the best choice is DragStrip 2. Among its many virtues are multiple palettes (including a current-applications palette for quick switching among programs), large and small palette icons, status bars that display either file or application names (see "Text on the Side"), drag-and-drop icon installation (and editing), pop-up menus (listing folders, documents, and so on), and keyboard navigation. DragStrip's defects—icons that don't

UNIVERSALLY USEFUL

PART I: THE WAY YOU WORK

★★★★★/9.4 **Conflict Catcher 3.0.2** Pretty near perfect, and pretty near essential, start-up file manager. **Company:** Casady & Greene (408/484-9228). **List price:** $99.95.

★★★★/7.6 **Now Utilities 5.0.2** Diverse utilities collection with especially useful custom menu module. **Company:** Now Software (503/274-2899). **List price:** $89.95.

★★★★/8.1 **DragStrip 2.0** Feature-packed file launcher well worth the premium price. **Company:** Natural Intelligence (617/876-7680). **List price:** $59.95.

PART II: UNDER THE HOOD

★★★★/8.7 **Adobe Type Manager 3.9** Accurately renders PostScript fonts at all sizes on screen and on any printer. **Company:** Adobe Systems (415/961-4400). **List price:** $39.95.

★★★★/8.9 **SuperATM 3.9** ATM's PostScript font rendering plus intelligent substitution for missing fonts. **Company:** Adobe Systems (415/961-4400). **List price:** $69.

★★★★/8.6 **RAM Doubler 1.6** Fools your Mac into thinking it has twice the RAM it actually does. **Company:** Connectix (415/571-5100). **List price:** $99.

★★★★/7.8 **DiskExpress II 2.20** Intelligently defragments hard drives for optimum drive performance. **Company:** Alsoft (713/353-4090). **List price:** $89.95 (or as part of Alsoft Power Utilities, $139).

★★★★/7.3 **AliasZoo 2.0.5** Locates and fixes orphaned aliases and deletes unneeded ones. **Company:** Blue Globe Software. **Shareware fee:** $15.

★★★★/7.1 **OptiMem RAM Charger 2.1.2** Increases RAM available for applications by allocating it more efficiently. **Company:** Jump Development Group (412/681-2692). **List price:** $129.

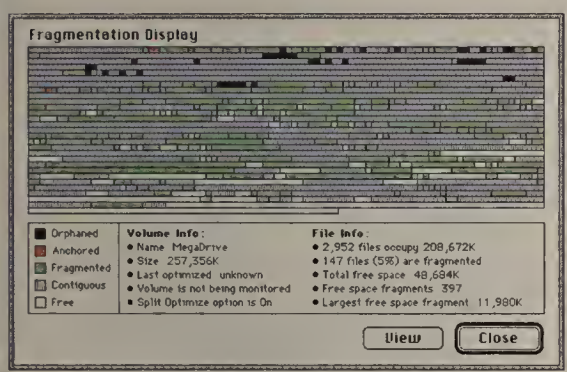
Text on the Side My favorite DragStrip 2 feature is palette titles and status bars that run vertically so you can actually read what they say.

automatically shift position when you resize a palette and a notably poor manual—are relatively minor.

PART II: UNDER THE HOOD

Other universally useful utilities tinker under the hood, subtly (or not so subtly) improving your Mac's performance. Most can be forgotten once you've installed them; a few require your attention from time to time.

ATM Adobe Type Manager (ATM) radically improves the rendering of PostScript fonts at all sizes, both on screen and on any printer; it's essential for just about anyone. In System 7.5, Apple's QuickDraw GX Installer automatically installs ATM. The problem is, most Mac owners don't need memory-hungry QuickDraw GX. If you don't want to jump through hoops to install ATM without QuickDraw GX, most Adobe products include (and usually automatically install) ATM.



How Bad Is It, Doctor? DiskExpress II graphically displays how files are stored on your hard drive and how badly they're fragmented.

You can also order an inexpensive ATM-only disk ($9.95) direct from Adobe; shrink-wrapped copies of ATM and SuperATM—which can substitute fonts more or less intelligently in documents that use fonts you don't have—cost more ($39.95 and $69, respectively) but include small libraries of Adobe typefaces.

RAM Doubler Real RAM can't be beat, but when you can't afford as much as you want (and who can?), RAM Doubler is the answer. Once you've installed this utility, your Mac thinks it has twice as much RAM as it actually does. Amazingly, there's very little performance penalty for this clever trick. Although I have occasionally heard of conflicts with other programs, I have yet to encounter one myself. The one real drawback to RAM Doubler is that it helps only those who run a number of programs simultaneously; if you have one memory-hogging application, you'll have to buy the real thing.

DiskExpress II People don't talk much anymore about disk optimization (reuniting file fragments stored at random throughout a drive), but a defragmented hard drive is still a fast hard drive. I like DiskExpress II best for this task because of its graphic fragmentation display (see "How Bad Is It, Doctor?"), the smart way it stores optimized files according to how much I use them, and the care its programmers have taken to prevent accidental data loss. Even though it runs in background mode, I wait and manually launch DiskExpress just before long lunches or during periods of writer's block.

AliasZoo Regularly cleaning out your stable of aliases will help keep your Mac running smoothly, and sweeping up abandoned and irrelevant aliases is best accomplished with AliasZoo. It verifies all your aliases to ensure they're functioning properly and identifies those that aren't. Any alias, healthy or not, in AliasZoo's complete alias tally can be renamed, reassigned to a new target file, or tossed into the Trash.

OptiMem RAM Charger Hard-core tinkerers who want to squeeze every drop of performance out of their Macs should consider OptiMem RAM Charger, an extension that radically changes the way RAM is allocated to applications. Instead of allowing a program to hoard a big chunk of RAM (the standard Mac method) regardless of what it actually needs, RAM Charger initially gives an application the smallest amount of RAM it can survive on and ladles out more RAM only if it's required. Because your applications use RAM more efficiently with RAM Charger, you can run many more applications simultaneously. (With RAM Doubler installed as well, the number of programs you can run at once will impress even the most jaded multitasker.) Sadly, some programs don't take kindly to RAM Charger's manipulations; fortunately, you can turn RAM Charger off for these applications but still reap its benefits with all your other programs. RAM Charger works adequately with its standard factory settings and can automatically improve upon some of those settings by watching the way you work, but those with no technical know-how are best off avoiding it, since careful tweaking of its rather esoteric options is the best way to optimize RAM Charger's performance.

ONLINE HONORS

★★★/6.9 Claris Emailer 1.0v2 One-stop E-mail sending, receiving, and storing, plus a single all-encompassing address book. **Company:** Claris (408/987-7000). **List price:** $89.

★★★/6.7 GrabNet 2.0 Bookmark manager for Netscape Navigator grabs Web graphics and text. **Company:** ForeFront Group (713/961-1101). **List price:** $19.95.

★★★★/7.9 StuffIt Deluxe 3.5 Mac, PC, and Internet file compression and decompression. **Company:** Aladdin Software (408/761-6200). **List price:** $129.95.

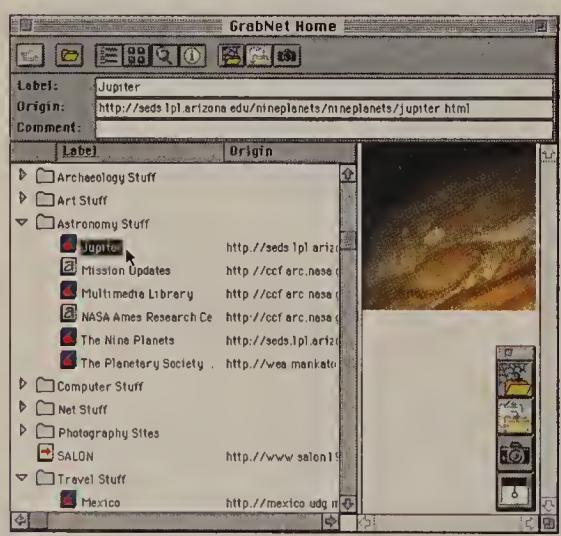
Online Utilities

Electronic communications are getting more complex every day. A few well-chosen online tools can reduce download costs and help organize incoming mail.

Claris Emailer The blessings of E-mail can quickly become a curse if you don't have a single, well-designed mail center. That's where Claris Emailer

comes in. Emailer knows how to exchange mail (using its own software) with America Online, CompuServe, eWorld, RadioMail, and the Internet. With a single command (or according to a predefined schedule) it can send and receive all your mail for all your accounts, automatically prioritizing it according to your preferences. It stores all your old mail in a single Filing Cabinet containing a user-defined scheme of folders. Emailer makes great use of the drag-and-drop function for almost everything, and best of all, it offers a single address book for everyone you know, so you never need to think about *how* to contact someone. Emailer is far from perfect—it can't pick up my CE Software QuickMail messages, for example, and handles PPP Internet connections poorly—but even if you get mail on only one service, life online with Emailer is far more efficient than life without it.

GrabNet If you're a serious (or merely half-serious) Web surfer, you know that the one place Netscape Navigator 1.X falls down is in managing large collections of bookmarks (or URLs, the online addresses for Web sites; version 2.0, scheduled for release about the time you read this, addresses this problem). GrabNet fills this gap admirably with its hierarchical list of bookmarks, either working on its own or installing a GrabNet menu in Navigator (see "Caught in the Web"). In Navigator, send the bookmark for the current Web page to GrabNet with a GrabNet menu command. Send a Web graphic, a portion of a Web page, a piece of Web text (all with bookmarks attached), or an embedded reference to another Web site to GrabNet with little more than a simple point and click. In GrabNet, view the graphics or text attached to any bookmark in the GrabNet list, or double-click on a bookmark to switch to Navigator and go directly to that Web site. GrabNet makes Web navigation with Navigator significantly easier. My only gripe is the lack of a manual; learning GrabNet through its Apple Guide is painfully tedious.



Caught in the Web With GrabNet's Finder-like, customizable hierarchy of folders, you can easily organize hundreds of bookmarks. You can also view graphics or text attached to the selected bookmark.

StuffIt Deluxe In the Mac online universe, files are "stuffed" (compressed) for faster transfer. Although it's possible to rely solely on self-extracting files and shareware unstuffers, serious telecommunicators should treat themselves to a copy of StuffIt Deluxe. In addition to near-effortless stuffing, unstuffing, and archive management, StuffIt Deluxe handles a broad spectrum of other Macintosh (BinHex and MacBinary, for example), PC (Arc, Zip), and Internet (uuencoding) transfer formats. If your target audience includes PC owners, stuff your files as usual and direct PC users to StuffIt Expander for Windows (freeware) for unstuffing. Or, since virtually any PC decompression utility can unzip a compressed file, you can create zipped versions of your files (sadly, StuffIt can only unzip files) with easy-to-use ZipIt (Thomas Brown, $15).

BUSINESS BASICS

★★★★/8.6 **Desktop Dialer 1.4.2** Dials phone numbers appearing in any document. **Company:** Sophisticated Circuits (206/485-7979). **List price:** $75.

★★★★★/9.3 **AreaCodeFinder 4.0** Identifies the location (as well as the time zone) of an area code and vice versa. **Company:** John Calande. **Shareware fee:** $15.

★★★★/7.5 **TypeIt4Me 4.5.1** Automatically expands user-defined abbreviations in any application. **Company:** Riccardo Ettore. **Shareware fee:** $30.

★★★★/7.6 **MacLinkPlus/Translators Pro 8.06ia** Excellent PC-to-Mac (or reverse) conversions for word processor, spreadsheet, or database documents. **Company:** DataViz (203/268-0030). **List price:** $149.

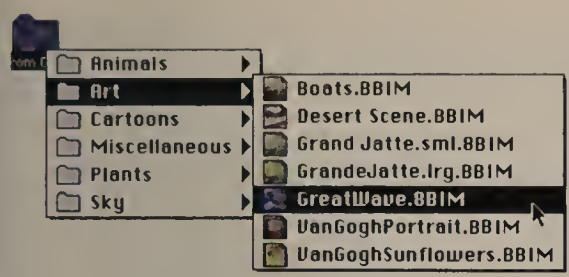
★★★★/8.3 **PopupFolder 2.0.1** Improves Finder navigation via ubiquitous pop-up menus. **Company:** Inline Software (617/938-8088). **List price:** $79.

★★★★/7.3 **Calc+ 2.0** Simple calculator with a resizable, scrollable, editable, printable tape. **Company:** Abbott Systems (914/747-4201). **List price:** $29.

Business Utilities

In business, we all deal with machines other than our Macs, from phones to other people's PCs. Here are some high-efficiency utilities for easy dialing, file conversion, and other business necessities.

Desktop Dialer Recently, I added Desktop Dialer's cigarette-pack–size box to one end of my keyboard's ADB cable, routed my phone line through the box, and told Dialer's software my local area code. Now I need only click on a number (in my Now Contact database—or in any of the dozen or so other programs that work directly with Dialer), or highlight a number and press a key command, and Dialer dials the phone for me. Incredible. Not incredible is Dialer's 20-number memory-dial desk accessory, which is less convenient than the memory-dial in my



Drive-Thru Menus PopupFolder adds instant contents menus to disk and folder icons in the Finder (as shown here) and in Open and Save dialog boxes.

phone. But my greatest disappointment is that Dialer can read numbers only, and not easy-to-remember, hard-to-dial numbers like 1-800/SOS-APPLE.

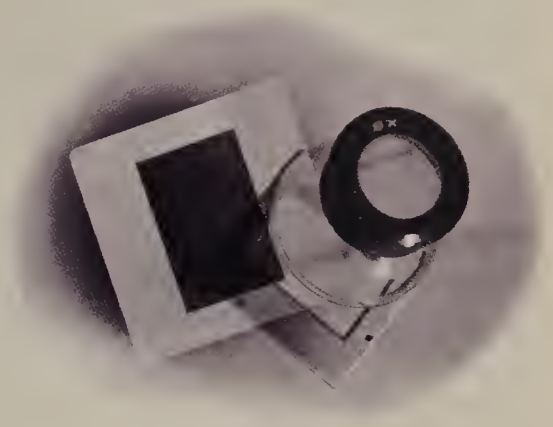
AreaCodeFinder Other phone hassles—finding the area code when you know only the city, determining the geographic location of an unfamiliar area code, and figuring out whether it is too late (or too early) to call—have been solved by this utility. Enter the name of the city and AreaCodeFinder tells you the area code. Enter an area code and you get the state and cities that use it. There is also a map of North America and its time zones, which displays the current time in each zone and highlights the location of the most recently searched area code. Conveniently, AreaCodeFinder stores all its information in a separate, easy-to-replace data file, which is frequently revised (since new area codes are popping up like mushrooms after a rain) and available online.

TypeIt4Me If your macro needs are modest, consider TypeIt4Me. Easy to use and reliable, TypeIt4Me's forte is automatic text expansion. Once you teach it your shorthand, TypeIt4Me automatically replaces text as you type. You can also create abbreviations for the current date and time and teach TypeIt4Me to correct your most common typos. Don't tell Microsoft, but TypeIt4Me is an inexpensive way to give Word 5.1 a good facsimile of Word 6's AutoCorrect function.

MacLinkPlus/Translators Pro If you regularly exchange word processor, spreadsheet, or database documents with PC users, there's no better way to convert those files than with MacLinkPlus/Translators Pro. Translators Pro makes opening a PC file as easy as double-clicking on it, opening it with your application's Open command, or dragging and dropping it (or a batch of files) on Translators Pro's Document Converter applet. Translators Pro's word processor conversions retain embedded graphics and original formatting to a remarkable degree, and its new HTML translator gives you Web pages much as they appear in Netscape Navigator or Spry Mosaic (with embedded Web addresses conveniently appended as footnotes). Translators Pro includes Apple's Macintosh PC Exchange, which allows you to use DOS disks in your Mac's floppy disk drive. (Software Architects' DOS Mounter 95 does the same for any removable DOS media, including SyQuest cartridges and rewritable optical disks.) Also included is DataViz FileView, which (like Abbott Systems' very skillful CanOpener) can extract the text from virtually any Mac, DOS, or Windows document that stumps the translators.

PopupFolder Even with neatly nested folders, digging into or out of them to file or retrieve documents is still a troublesome task. You can greatly streamline folder navigation with PopupFolder, which adds hierarchical menus both to window title bars and to folder and disk icons (see "Drive-Thru Menus"). You can traverse these pop-up menus simply to get to a file, or you can drag a file to move it or copy it, drop it on an application, or install its alias. For instant recall, PopupFolder also allows you to assign keyboard shortcuts—usable in the Finder and Open and Save dialog boxes—to files, folders, and applications.

Calc+ If you're looking for an audit trail, Calc+ is the way to go. This calculator has a resizable, scrolling "tape" with color-coded totals and a one-number memory (hey, that's one more than Apple's Calculator). You can resize the scrolling tape, select the appropriate font and size, insert line-by-line comments, edit previous entries (Calc+ automatically recalculates any affected sums), and save or print your tape. Desktop publishers, take note: Calc+ also does instant conversions between inches, centimeters, picas, and ciceros.



Graphics Utilities

If it seems like your graphics files are managing you, rather than the other way around, here are some great preview and conversion tools.

DeBabelizer DeBabelizer is a godsend for anyone who needs to work with lots of scans, downloaded images, and the like—but it is devilishly difficult for most mortals to use. DeBabelizer can convert a file to one of 70 graphics formats and can deal with hundreds of files at a time. In the process, it can scale or crop graphics, reduce their color depth, adjust the color palette, and more, using a variety of options. Although it has a clunky interface and poor manual, DeBabelizer does provide excellent color controls, it manipulates QuickTime movies, and now it supports formats used by Web-page designers.

GRAPHICS GOLD

★★★★/7.6 **DeBabelizer 1.6.5** Endlessly talented and exasperating batch processor for bitmapped graphics. **Company:** Equilibrium Technologies (415/332-4343). **List price:** $399.

★★★★/7.2 **Transverter Pro 3.0.1** Batch-process PostScript files or preview them to catch mistakes before printing. **Company:** TechPool Software (216/291-1922). **List price:** $395.

★★★★/7.3 **Adobe Fetch 1.2** Catalog graphics, text, and more for easy organization and retrieval. **Company:** Adobe Systems (415/961-4400). **List price:** $149.

And Honorable Mention Goes to . . .

WHENEVER I WRITE ONE OF THESE CAST-OF-THOUSANDS articles, there are always a number of great performances that end up, for one reason or another, on the cutting-room floor. Here are a few of my favorites.

Suitcase Although it's the best font manager available, Suitcase 2 (Symantec, 541/984-2490) is so old that my manual is yellow with age. A completely redesigned and rewritten Suitcase 3 should be available by the time you read this; if you have a large font collection, be sure to check out this utility.

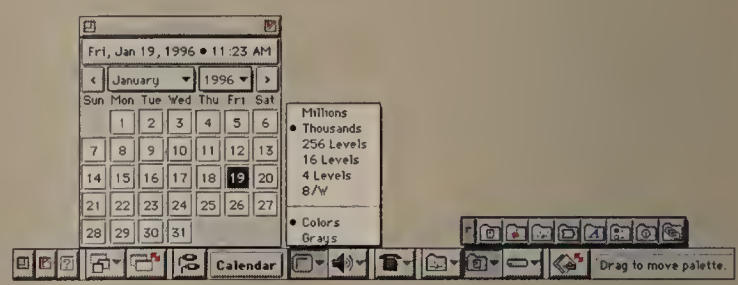
Tracer If you need to convert bitmaps to Béziers, Tracer (ScanVec, 508/694-9488) can run circles around Adobe Streamline. Unfortunately, Tracer also has a few rough edges: it's outlandishly expensive, it uses hardware-key copy protection, and it sometimes performs erratically.

Poser If drawing lifelike figures has you stumped, let Poser (Fractal Design, 408/688-8800) give you a hand. You can twist and turn its wide variety of double-jointed

On Your Toes You can view a Poser figure from any position, change the perspective, adjust the lighting, and select from a variety of surface styles and textures.

body types to create figures in any position (there are many predefined poses, too). Only detailed facial features and hand positions and loose-fitting clothing are shortchanged in this easy-to-use program (see "On Your Toes").

OneClick A macro program in disguise, OneClick (Westcode Software, 619/487-9200) adds button bars to the Finder and any application (see "Who's Got the But-



Who's Got the Button? In addition to launching programs and macros, the buttons on OneClick palettes can open other palettes, pop-up menus, and specialty items such as a monthly calendar.

ton?"). Define buttons by dragging and dropping applications or folders, selecting from a library of predefined buttons, defining tasks by example, or programming buttons using AppleScript or OneClick's EasyScript.

theFONDler Although it makes little effort to disguise the guts of font anatomy, theFONDler (Rascal Software, 805/255-6823) can locate corrupt font files and dozens of other problems that mess up print jobs, as well as eliminate font-ID conflicts once and for all. I just wish Rascal would give it a different name. (For more details, see *Reviews,* in this issue.)

EMMpathy EMMpathy (Bill Steinberg, freeware) can locate and correct corrupted data in a 500-series PowerBook battery's Energy Monitoring Module (EMM), bringing apparently dead batteries back to life.

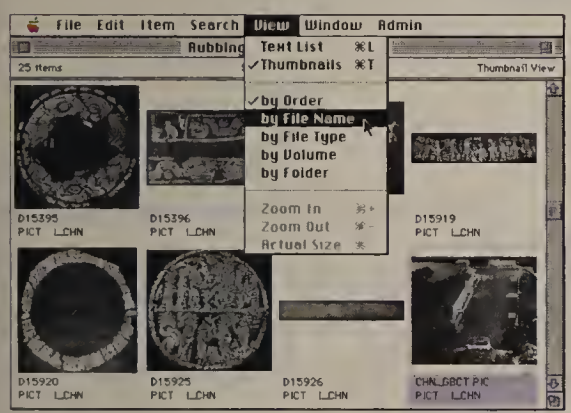
SignatureQuote For communications programs that lack these essential functions, SignatureQuote (Semicolon Software, shareware fee $10) can stamp your E-mail with one of two ready-made "signatures" and "quote" incoming text (using the angle brackets standard on the Internet) for a reply.

MultiClip Pro Unlike Apple's Clipboard, MultiClip Pro (Olduvai, 305/670-1112) can store as many items as you care to copy into it, and paste them back in the same or reverse order—or you can select and paste a specific item. Conveniently, you can easily operate MultiClip from the keyboard; unfortunately, the program eats up a whole megabyte of RAM.

Speed Doubler If you own a Power Mac, Speed Doubler (Connectix, 415/571-5100) replaces Apple's 680X0 emulator and runs nonnative applications noticeably faster. Like CopyDoubler (in Symantec's Norton DiskDoubler Pro), it also smartens up the Finder's less-than-intelligent file copying.

Transverter Pro If Béziers are your métier (or your bête noire), you need Transverter Pro. Its major skill is converting raw PostScript (such as a printed-to-disk page-layout file), EPS, or Acrobat (PDF) files—or a piece of a file, or a batch of files—into TIFF, PICT, JPEG, EPS, or Adobe Illustrator format. It can also add screen previews to EPS files that lack them, convert multipage PostScript files into single-page placeable files, and preview PostScript files (if you're conversant in PostScript) to help you eliminate errors before they cost money. Conversion options are limited (compared with DeBabelizer's), manuals need major work, and the conversions aren't always perfect, but in comparison with Photoshop's standard EPS-to-bitmap conversions, Transverter Pro easily came out on top.

Adobe Fetch Theoretically, I could organize all my multimedia files in one huge hierarchy of nested folders (if my hard drive were big enough) and use Photoshop's tiny thumbnail icons to distinguish different images. Practically speaking, I prefer to keep my files where they are, have Adobe Fetch list them all in a master catalog, and maintain my sanity as well as my eyesight. Fetch easily catalogs files (no matter where they're stored) and adds file and folder names to each item's keyword list (you can assign additional keywords as well). I can view a catalog as big-enough-to-actually-see preview images (see "Order out of Chaos") or as faster-scrolling Finder-like lists. Unfortunately, Fetch doesn't allow me to drag and drop items into or between open catalogs. But because it can hand over the reference to a selected file (rather than the file itself), Fetch is an excellent companion to Adobe PageMaker or QuarkXPress.



Order out of Chaos Although you can sort Fetch catalog items by name, file type, date added, and so on, you can't drag them into an arbitrary order (such as most to least often used).

PUBLISHING PARTNERS

★★★★/8.5 **TypeTamer 1.1.1** Every conceivable Font menu improvement in one well-designed program. **Company:** Impossible Software (714/470-4800). **List price:** $59.95.

★★★★/7.2 **FontMonger 1.5.7** Easy font modifications, from redrawing characters to converting font formats. **Company:** Ares Software (415/578-9090). **List price:** $149.95.

★★★★/7.4 **theTypeBook 4.02b** Creates font reference books from ready-to-print specimen pages. **Company:** Rascal Software (805/255-6823). **List price:** $49.95.

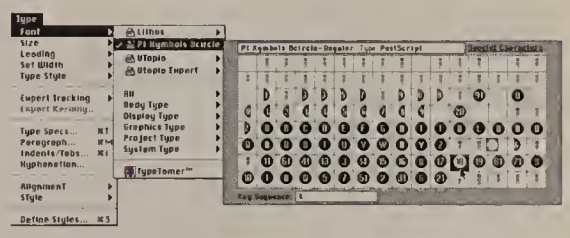
Publishing Utilities

In publishing, managing lots of fonts and tons of typefaces is never easy. Take a look at these three timesaving organizers.

TypeTamer OK, here's the shameless truth: TypeTamer is the best font-menu manager I've ever seen. Somehow, it does everything and does it just right (see "Just My Type"). It automatically groups fonts by family, allows you to organize families into sets (all serif fonts together, for instance), and lets you scroll to a font simply by typing the first few letters of its name. Icons beside each font name indicate whether it's PostScript or TrueType; point to the icon to display either sample text or a complete character-set table from which you can locate any character.

FontMonger I'm not a big fan of messing around with typefaces experts have spent months perfecting, so some things FontMonger can do—converting TrueType fonts to PostScript (or vice versa) and tweaking character outlines—make me nervous. But for font-technology illiterates like me, FontMonger is an able typographic assistant. Use it to move a much-used character to a more convenient key combination, for example, or to create typeset-quality fractions (such as ½ instead of 1/2). More suspect but sometimes unavoidable alterations, such as generating an oblique or small-caps font for a typeface that lacks one, are also easy to accomplish.

theTypeBook Making a typeface reference book is a lot easier with theTypeBook. Its one-typeface-to-a-page templates contain samples of character forms and alternate characters, examples of different point sizes, body copy at different leadings, and tables of characters per pica and capital-letter height. Other templates include full-page, large–point-size displays of a font's complete character set, keyboard layouts (great for pi or symbol fonts), and catalogs that squeeze as many as 90 typeface samples on a page. You can customize the elements of any page, insert comments alongside any element, and add your business name and logo to the bottom of each page. theTypeBook's finished product is not only handy to have around but also looks quite professional to your clients. ■



Just My Type For easy access, TypeTamer puts a separate list of the fonts in the current document near the top of the Font menu.

Contributing editor ROBERT C. ECKHARDT collects many kinds of small masterpieces, from utility programs to Mexican *retablos* and Zuni fetishes.

You've Got Two Seconds To Find Exactly What You Want On The Internet.

Ready, Go.

http://guide.infoseek.com

Easier to use and more accurate than any other search service.* Blazingly fast. In fact, no other search service is proven to be faster. Rated #1 and voted Most Valuable Internet Tool of 1995 by PC Computing. With WWW pages, Usenet news, FTP and Gopher sites, this is the only source you'll ever need for Internet information. No matter what you're searching for, you'll always get excellent net results with Infoseek Guide. Go ahead. Give it a try.

infoseek®
You Found It.

*PC Computing tested Infoseek against 14 top search engines and gave it the highest rankings for usability and effectiveness (September 1995).

Infoseek, Infoseek Guide, and the Infoseek logo are trademarks of Infoseek Corporation, which may be registered in certain jurisdictions.
Copyright ©1995 Infoseek Corporation All rights reserved.

Circle 47 on reader service card

Secrets

Comedy of Errors

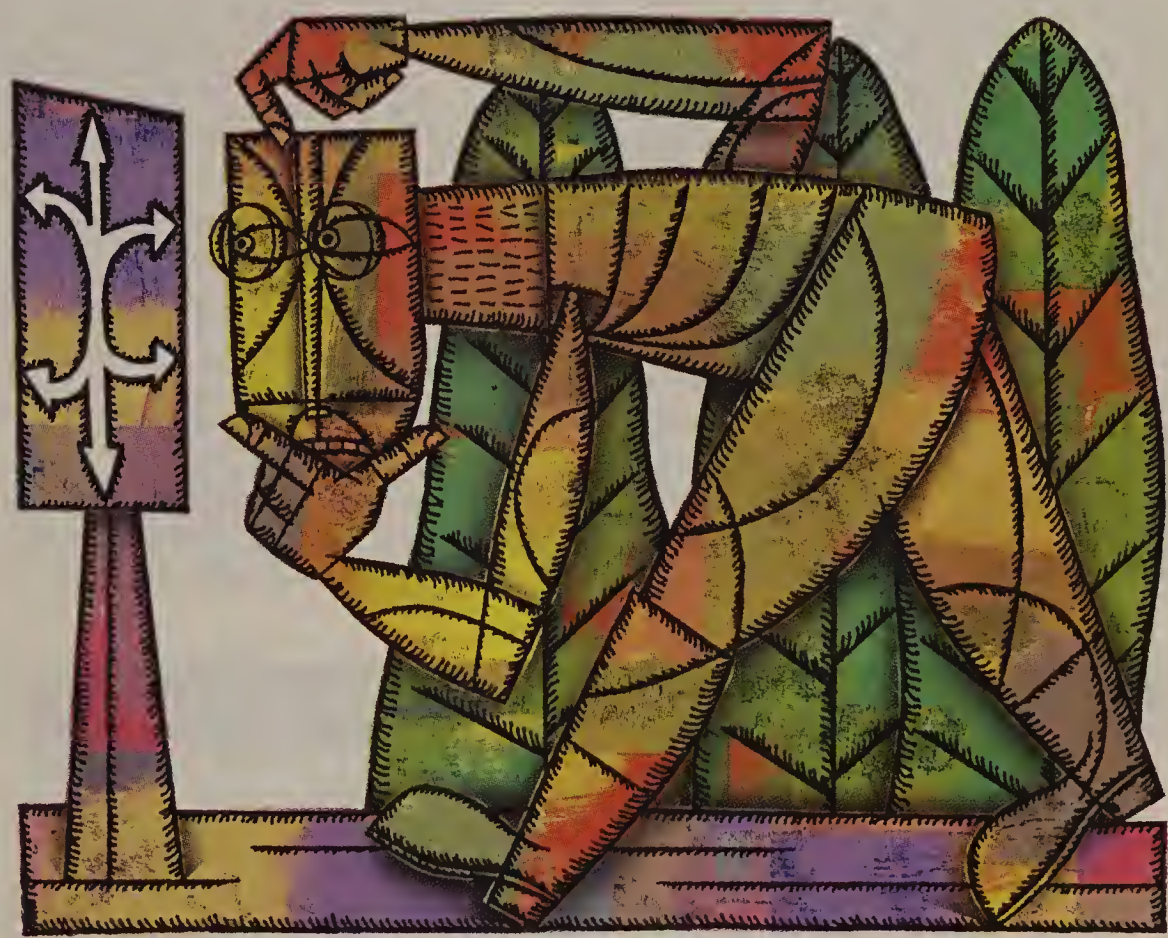
WHAT YOU REALLY LEARN FROM YOUR MAC'S MYSTERIOUS ERROR MESSAGES

by Joseph Schorr

The next time you find yourself staring at your Mac's frozen screen with a mysterious Type 1 error message flickering over your lost work, think about this: The Macintosh Operating System is capable of displaying more than 280 error messages. If you've only seen a handful of them, cheer up. Think of the hundreds you've managed to avoid.

OK, that's not terribly comforting. Maybe you've never had your day ruined by the sinister "Couldn't find 5 nybbles in 200 tries" (Error –66). Still, those morbid error messages you do see—and the crashes that accompany them—can make your blood run cold. But what if you really understood what all those messages and code numbers meant? Wouldn't that help you zero in on the root cause of your crashes? Wouldn't you be able to head off such tragedies in the future?

Don't kid yourself. Oh, it's true that every one of Apple's error codes does have a precise meaning that isolates a specific problem on your system. But frankly a lot of these cryptic error messages don't mean much to anyone but programmers. On the other hand, some error codes do contain clues that can help you track down a stubborn problem. Serious troubleshooters should know which codes to ignore and which provide genuine clues. Here are a few guidelines.



Don't Believe Everything You Read

It would be great if your Mac could tell you exactly what went on in the aftermath of a crash. In reality, the Mac's error codes aren't nearly that precise—or enlightening. For one thing, the error definitions themselves provide you with little information that you can actually use unless you're a programmer. Knowing that an "unimplemented core routine" (Error 12 or Error –4) caused your crash doesn't shed much light on why a program keeps crashing. Most error codes contain technical information a programmer could use to pinpoint a glitch in code, but they don't give you much to work with.

The second—and even more frustrating—problem is that the error messages you get in a crash are often flat-out wrong; for example, the Mac might say you had an "illegal instruction" problem (Error 3) when in reality you simply used up all your RAM. Following the clues given by an error message could lead you down a blind alley.

WARNING! YOUR DAY HAS BEEN UNEXPECTEDLY RUINED

Here are a few other common error messages and the problems they point to:

"APPLICATION UNEXPECTEDLY QUIT" Applications quit without warning when they either run out of memory or encounter a conflict with an incompatible (usually out-of-date) system extension. A Type 1 error often means your program ran out of memory. The application tried to access a chunk of memory that didn't exist or needed more RAM than was available. You can remedy the problem by allocating more memory to the program, adding more RAM to the system, or simply restarting your Mac so the RAM available is in contiguous chunks.

A Type 2 error is also related to memory use. The Mac tried to store a chunk of data in an address that couldn't hold it. A Type 3 error is called an illegal instruction error. It means the Mac tried to execute an instruction that isn't part of its standard vocabulary. The cause may be an out-of-date system extension or hard disk driver.

ERRORS 17 THROUGH 24 These errors indicate that the Mac tried to access one of the standard routines in the System file and couldn't find it. In all probability, that means you have a corrupted System file. Try installing a new System file to replace the damaged one.

ERROR 25 Once again, you've run out of RAM.

ERRORS 26, 27, 30, 31 Apple says these errors tend to appear when your System file has gotten mangled. Replace it.

ERROR 28 This error is accompanied by the message "Stack ran into heap," but that's just another way of saying you ran out of memory.

TYPE 11 ERROR Don't look for specifics here. On a Power Mac, a Type 11 error can mean almost anything. It simply refers to an error that occurred in reading native PowerPC code. Usually it means a bus error, an address error, or an illegal instruction.

ERROR –39 A –39 error is usually accompanied by the message "end of file" or "no additional data in the format." This error points in the general direction of a corrupted file. It means that the Mac started to process a file but couldn't finish reading it. If you encounter this message at start-up, it could mean that the Launcher has become corrupted. All you have to do is drag the Launcher control panel into the Trash and reinstall it.

The Bad F-line Fallacy

Here's a classic case of a fallacious error message: Power Macintosh users frequently get two error messages, one that says "FPU not installed" and another that says "bad F-line instruction." They get both of these closely related messages despite the fact that (1) Power Macs do have an FPU (floating-point support has been integrated right into the PowerPC chip), and (2) they aren't using a program that requires an FPU anyway.

Why does this happen? One reason is that on 680X0 Macs, the CPU and the FPU send code back and forth using a special set of instructions (called F-line instructions because they always start with the letter *F*). Every so often, due to one glitch or another, your Mac may encounter a piece of code it wasn't supposed to read—code that, coincidentally, starts with the letter *F*. The CPU interprets the code as an F-line instruction. Of course, your Mac can't carry out this instruction, because the Power Mac doesn't have a separate FPU chip waiting to receive the instruction, so you get a "No FPU installed" or "Bad F-line instruction" message. In reality, the cause was most likely an extension conflict or a program that needs to be upgraded, and has nothing to do with FPUs or F-lines.

Decoding Error Codes

Does this mean all those error codes are worthless? No; in many cases the codes can point you in the general direction of a problem. In the example given earlier, the "unimplemented core routine" (Error 12) is a strong indicator that you're dealing with an honest-to-goodness software bug. It means the programmer placed a temporary break in the code for use in debugging but forgot to remove it before releasing the final code. If you can reproduce the error, it's a pretty clear indication that you need to contact the software vendor to report the bug and ask for a patch or an update. **m**

When All Else Fails . . .

There are hundreds of error messages you may see on your Mac, but the most common are caused by only a handful of problems: a system extension conflict, a corrupted file, or lack of memory. If you're plagued by relentless Type 1, 3, or 11 errors, follow these troubleshooting procedures to wipe out the problem.

1. Turn off all extensions by restarting the Mac while holding down the shift key. If the error disappears, you know it's a corrupted or out-of-date extension or two conflicting extensions. Try to isolate and get rid of the conflicting extension. (You can use System 7.5's Extensions Manager or a third-party utility such as Casady & Greene's Conflict Catcher 3 to turn extensions on and off selectively.)

2. Update the hard disk driver. Older SCSI disk drivers are known to conflict with SCSI Manager 4.3 and generate some of the errors described above. You can update the driver by running Apple HD SC Setup version 7.3.5 or by using a third-party drive-formatting utility.

3. Zap the Mac's parameter RAM (PRAM) by restarting the Mac while holding down ⌘-option-P-R. (PRAM is the chunk of memory used to preserve various preferences and settings on your Mac.)

4. Perform a clean install of the system software, completely replacing the entire System Folder.

Contributing editor JOSEPH SCHORR is co-author of *Macworld Mac and Power Mac Secrets*, third edition (IDG Books Worldwide, 1996).

If your output could be *close to perfect* or *perfect*, which would you choose?

The new Accel-a-Writer 8300 featuring X•ACT™ {XANTÉ's Accurate Calibration Technology}

Perfect output at a surprisingly perfect price. For the first time in laser printer history, the new Accel-a-Writer 8300 with **X•ACT** allows you to calibrate the accuracy of your printer to within the width of a single dot. No other printer on the market delivers these exacting standards. And true **Adobe™ PostScript™** offers another standard of perfection with high performance and incredible output accuracy.

Next, **1200 x 1200 dpi** output turns your Accel-a-Writer 8300 into a desktop plain-paper imagesetter with capability to **print up to 12" x 25"** output.

The new Canon JX engine is at the heart of this leading-edge printer, along with XANTÉ's **Enhanced Screening Technology.** This feature allows you to further fine-tune your output quality by providing 40% more levels of gray when enabled for exceptional halftone quality.

So ask yourself... if your output could be *close to perfect* or *perfect*, which would you choose? We think you know the answer. XANTÉ's new Accel-a-Writer 8300. There's no other printer like it.

Circle 112 on reader service card

XANTÉ
Innovations In Output

1-800-926-8839, ext. 2125

Dealers call ext. 2126. FAX: 334/476-9421.

MasterCard/VISA/American Express/Discover Card accepted.

AT&T Capital Corporation

Optional on-site service provided by XANTÉ, in partnership with Olivetti North America

olivetti

Adobe PostScript

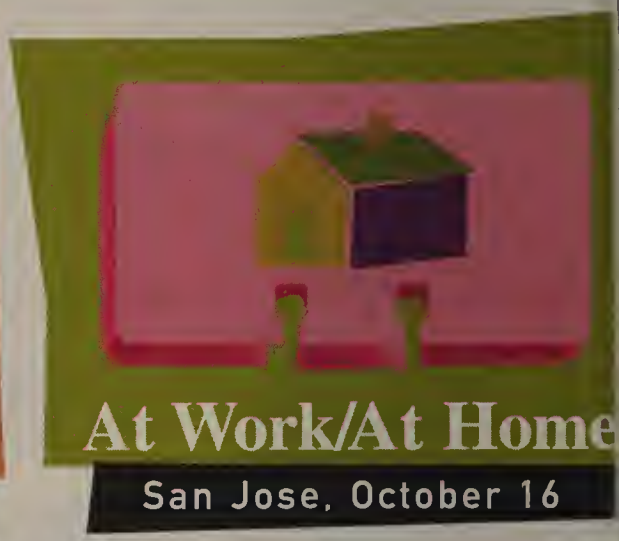
NTÉ Corporation. XANTÉ and Accel-a-Writer are registered trademarks of XANTÉ. Adobe, PostScript, and the PostScript logo are trademarks of Adobe Systems d or its subsidiaries and may be registered in certain jurisdictions. Other brands and nes are trademarks or registered trademarks of their respective holders.

AN EXCLUSIVE

INVITATION FOR

Macworld Active Buyers

Come and meet top Macintosh developers and resellers at Macworld Active Buyer Days



Macworld cordially invites you to attend the Active Buyer Days in 1996!

Active Buyer Days are regional topic-specific, half-day events that allow Macworld readers the exclusive opportunity to interact with top Macintosh developers and resellers, see private demos, take advantage of special event discounts and participate in the Active Buyer Sweepstakes where thousands of dollars of Macintosh hardware and software will be given away!

Each event is entirely complimentary and includes lunch and an afternoon reception.

Register today...attendance is limited and exclusively for Macworld readers. A Macworld representative will contact you with additional information.

Yes! I'm a Macworld Active Buyer

Interested in attending:

- ○ Multimedia
  Los Angeles, March 13
- ○ GRAPHICS
  New York, May 15
- ○ At Work/At Home
  San Jose, October 16

name _____

title _____

company _____

address _____

city _____ state _____ zip _____

phone _____ fax _____

number of Macintosh computers for which I have purchase involvement: _____

MAIL TO: Macworld Active Buyer Days, 501 Second Street, San Francisco, CA 94107

FAX TO: 415.442.0766 / E-MAIL TO: anna_noetzel@macworld.com

Quick Tips

Tips, Tricks, and Shortcuts

by Lon Poole

Although version 2.6 of America Online (AOL) for Macintosh doesn't have access to the Web-page tutorial that AOL for Windows offers (as noted in *Letters, Macworld*, January 1996), Macintosh users can nevertheless publish Web pages on the Internet through AOL. First compose your Web pages in HTML format with a word processor or an HTML-editing program (such as Adobe PageMill), says Samuel Reichberg of New York (see "Build Your Own Home Page," November 1995). If you use a word processor, be sure to save each Web page as a plain text file. Next, test each page by opening it with the Open command in AOL's Web Browser while AOL is not connected. Then connect to AOL and upload the HTML files and supporting files (GIF files, AIFF sound files, and so forth) to your personal space on AOL's Web and FTP server. When you upload, specify text format for the HTML files and binary format for the supporting graphics and sound files. You have 2MB of space available for each of the five screen names your AOL account allows you.

To access your personal space, Bob Coon of Indianapolis suggests you type the keyword **My Place** and in the resulting window click the Go to My Place icon. You'll see AOL's FTP window displaying the contents of your personal space, much as the contents of a Mac disk appear in a Save dialog box. You upload files to your personal space by clicking the Upload icon at the bottom of the FTP window. (FTP stands for File Transfer Protocol, and you can think of it as the Internet's functional equivalent of a minimalist Finder.) There are other icons for managing your personal space—for renaming and deleting files and creating directories, which are equivalent to folders. Uppercase and lowercase letters are not interchangeable in file and directory names on the Internet, cautions Steve Seaquist of Landover, Maryland. For simplicity, name your files and directories with lowercase letters.

The URL for a Web page in your personal space is *http://members.aol.com/screenname/filename*. In that URL, replace *screenname* with your actual AOL screen name in lowercase letters with all spaces removed, and *filename* with the name of the file. If you name your home page *index.html*, most Web browsers can link to it with the relatively simple URL *http://members.aol.com/screenname*.

LocalTalk Joins Ethernet

Q My Power Mac 7500 has a LocalTalk connection through the printer port to a LaserWriter Select 360, and an EtherTalk network connection through the Power Mac's built-in 10BaseT Ethernet port. When I select EtherTalk in the Network control panel, I can no longer access the LocalTalk LaserWriter. How can I get my Mac to access EtherTalk and LocalTalk simultaneously?

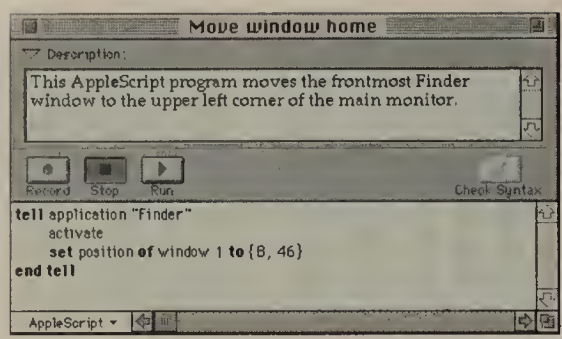
ROBERT FORSTOT
Saint Louis, Missouri

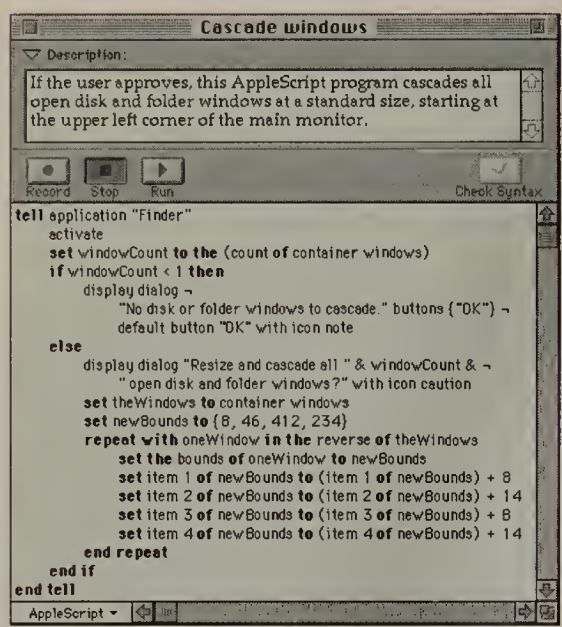
A Apple's free LaserWriter Bridge 2.0 software may be just what you need. It allows you to have a primary network connection to Ethernet simultaneously with a secondary network connection to LocalTalk. After installing LaserWriter Bridge, set your primary network connection by selecting EtherTalk in the Network control panel. Then establish a secondary network connection by turning on the LaserWriter Bridge control panel. The software comes on the System 7.5 Update CD (800/769-2775, ext. 5794), and you can get it online as part of Network Software Installer 1.5.1 (AOL keyword, *applecomputer*; Web page, *http://www.support.apple.com/wwwdocs/apple_sw_updates.html*).

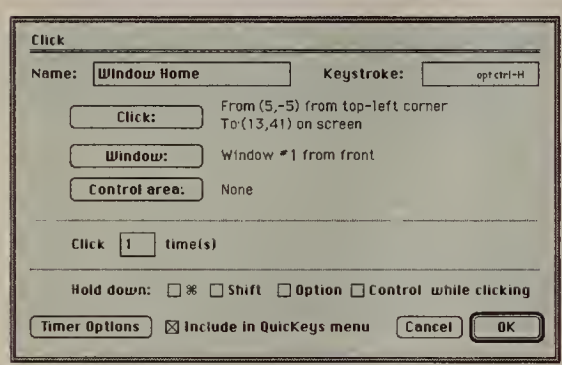
An Ethernet network can include any number of Macs with active LaserWriter Bridge software, but each Mac must be connected to a different LocalTalk network. In other words, each LocalTalk segment can have only one Mac with active LaserWriter Bridge software.

You control whether LaserWriter Bridge allows other Macs on the Ethernet network to access all printers connected to your LocalTalk network. LaserWriter Bridge can theoretically handle 32 printers, but to ensure adequate network performance, Apple recommends 8 or fewer. If you prefer, you can designate your LaserWriter Bridge as private.

continues







Window Movers These two AppleScript programs (top and middle) and the QuicKeys shortcut (bottom) rearrange Finder windows. Make sure to save your script with the Kind option set to Application and the Never Show Startup Screen option turned on. For easy access you can put them in the Automated Tasks folder inside the Apple Menu Items folder. If you use Speech Recognition, put an alias of each script application in the Speakable Items folder. To create the QuicKeys shortcut, you define a Click shortcut whose Window option is set for the first window from the front and whose Click options are to click at coordinates $x = 5$, $y = -5$ relative to the top left corner of the window and drag the window to coordinates $x = 13$, $y = 41$ relative to the screen.

Other Macs on the same LocalTalk network segment as the LaserWriter Bridge can access only devices on that LocalTalk segment. If they need access to printers, file servers, or other network services on the Ethernet network (including printers connected through LocalTalk Bridge software to the Ethernet network), you can install Apple's $100 LocalTalk Bridge software where it establishes a two-way bridge between LocalTalk and Ethernet networks.

LaserWriter Bridge and LocalTalk Bridge also work with Token Ring as the primary network instead of Ethernet.

The Science of Window Arranging

Q I often copy a folder from a computer with a large screen area to another computer on the network with a small screen area. If the folder's window was positioned in the lower-right corner of the large screen, I sometimes can't see any part of the window when I open the folder on the small screen. I can't resize the window or work with its contents. The same problem occurs when I open some DOS disks that were last opened on a computer with a large screen. How can I force a folder or disk window to a viewable place?

DAVIDMP
via the Internet

A The symptoms you describe surprise me because the Finder should position a window so that at least a part of its title bar is visible. It's then a simple matter to drag the window until you can see its zoom (grow) box, and resize the window to fit the screen. But even that chore becomes tedious if you have to do it repeatedly. You can use the Script Editor application that comes with System 7.5 to create a simple AppleScript program that moves the frontmost Finder window to the upper-left corner of the screen, or a somewhat more complicated script that makes all open disk and folder windows a standard size and cascades them from top to bottom. If you don't have System 7.5, which is the earliest version with AppleScript and a scriptable Finder, you can use a utility such as QuicKeys to create a macro that moves the frontmost window to the top left corner. "Window Movers" shows the two scripts and a QuicKeys macro, which are available from the Macworld Online software library.

An Accidental Easter Egg

Q The text in my Labels menu has been replaced mysteriously with the seven letters *alanjef* (obviously two names), with

continues

Get the new FreeHand Graphics Studio,™ featuring Macromedia xRes™ 2.0.
Macromedia's FreeHand Graphics Studio gives you everything you need for graphic design and illustration, including FreeHand,™ Extreme 3D,™ Fontographer,® and new Macromedia xRes 2.0. $699.*

Try new Macromedia xRes 2.0 for $199.**
Save $500 off our $699 SRP. Just $199 for Photoshop, Live Picture, and Fractal Design Painter users. Current xRes users please call 1-800-457-1774 for special pricing.

Upgrade To FreeHand 5.5 For Macintosh For As Little As $79.**
Only $79 to upgrade from FreeHand 5.0 to FreeHand 5.5. $149 to upgrade from FreeHand 4.0 or an earlier version, or from Mac versions of Deneba Canvas, Claris Mac Draw and Adobe Illustrator. FreeHand 5.5 Suggested Retail Price: $599

Enter to win a trip for two to Universal Studios Hollywood!
Experience movie making magic on the sets of some of the greatest films of all time! Includes round-trip air travel and 4 days/3 nights at the Sheraton Universal Hotel. See below for details.†

1-800-248-0800

MacWAREHOUSE

1-800-255-6227

1-800-222-2808

PC & Mac Connection

1-800-800-1111

*Proof of ownership required. **Estimated street price. Reseller prices may vary. Macromedia reserves the right to substitute products in the Studios at any time. FreeHand Graphics Studio will be available for Macintosh in February. Windows version will be available in March and includes coupon for Macromedia xRes 2.0 for Windows shipping Spring '96. †No purchase necessary. You are automatically entered when you register your Macromedia software purchased between 1/1/96 and 3/31/96. Open to legal residents of the U.S. and Canada. 18 years or older. All entries and registration must be received by April 10, 1996. Approximate prize trip value $3,000 plus 4 first prizes of Macromedia software valued at $900. For official rules and entry form, contact Macromedia at 1-800-326-2128. (MI/OH residents only may send stamped, self-addressed envelope to Macromedia Rules, PO. Box 18829, Irvine, CA 92713-8829.) Void in Quebec and where prohibited. Drawing will be held on or about 5/15/96. Odds depend on number of entries. Universal Studios Hollywood logo © 1995 Universal City Studios, Inc. Fontographer is a registered trademark and FreeHand, Extreme 3D, FreeHand Graphics Studio, and Macromedia xRes are trademarks of Macromedia, Inc. © 1996 Macromedia, Inc. All rights reserved.

New Studio, Fully Furnished. Designer's Dream. $699.

Introducing the FreeHand Graphics Studio.™ This is the place. Everything you need to create virtually anything you can imagine. The most powerful set of tools for graphic arts and design. All working together brilliantly to make creation easier.

Four amazing 2D and 3D products for one low price. FreeHand,™ the fastest and easiest illustration tool on the market. Extreme 3D,™ the complete 3D animation and rendering application. Fontographer,® the easiest way to create and modify fonts. And featuring the all-new Macromedia xRes™ 2.0, the fastest editing, compositing and painting tool for hi-res images. At $699** for the entire package, it's a price you can live with.

Imagine. A killer font you just designed, an incredible new 3D image, and a hi-res bitmap you created—all ready to be brought into FreeHand and incorporated into illustrations and page layouts.

It's time to take your designs to a higher level. So make the move to the FreeHand Graphics Studio. Just call Macromedia for the name of a reseller near you, or tour any Studio on our Web site.

Some people search a lifetime for a Studio like this. You can move in today.

Free Showcase CD-ROM* GO 1-800-326-2128

http://www.macromedia.com/

MACROMEDIA®

Tools To Power Your Ideas™

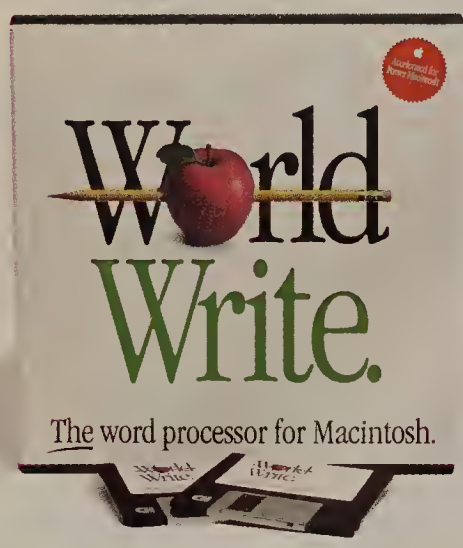
Circle 244 on reader service card

This ad and all artwork was created with FreeHand and the FreeHand Graphics Studio.

*Offers valid in the U.S., Canada, and Europe; call 1-415-252-2000 or FAX us at 1-415-626-[illegible]54. In Europe, call +44-1344-[illegible]. **Estimated street price. Reseller prices may vary. Macromedia reserves the right to substitute products in the Studios at any time. Macromedia, Fontographer, and the Macromedia logo are registered trademarks and FreeHand, Extreme 3D, Macromedia xRes, Tools To Power Your Ideas, and FreeHand Graphics Studio are trademarks of Macromedia, Inc. All other brand or product names are the property of their respective owners. © 1996 Macromedia, Inc. All rights reserved.

New Word Processing Powerhouse!

(No hardware upgrade required)



Power Mac
Full Install: 3.5MB
RAM requirements: 2MB

WorldWrite 3.0

Finally, there is a powerful word processor written exclusively for the Macintosh that won't require a hardware upgrade. While the big companies are pushing bigger and bigger applications requiring a heavy price in hardware and patience, WorldSoft has designed a small and elegant Macintosh word processor that still gives you the powerful features you want.

- Power Mac native
- Intelligent Tables
- text-to-speech
- stylesheets
- file management
- copy append clipboard
- irregular text wrap
- footnotes & endnotes
- 100% WYSIWYG editing
- master pages
- voice annotation
- System 7.5 savvy
- color separation
- page layout
- Thunder 7 spell checker
- search unopened text

The WorldScript-savvy version also offers complete multilingual capabilities including right-to-left languages and vertical input of Asian two-byte languages.

90-day money-back guarantee

$99 Introductory Offer

WORLDSOFT
14234 Saratoga-Sunnyvale Rd.
Suite #1
Saratoga, CA 95070
1-800-225-9299

Order from

1-800-222-2808
Priority Code MWJ59

Circle 145 on reader service card

one letter next to each label color. Also, sometimes the Finder's Page Setup and Print Desktop commands are dimmed. What's going on?

DAVID KATZ
Edmonton, Alberta, Canada

A The Labels menu change is an Easter egg that appears when you delete all the text in the Labels control panel. To get rid of it, enter some text for each label and restart (the original labels are Essential, Hot, In Progress, Cool, Personal, Project 1, and Project 2). You can get instructions for uncovering lots of Easter eggs in "Apple Easter Eggs," compiled by Daniel Fanton and available through Macworld Online on the Internet (*http://www.macworld.com*) and on AOL (keyword *macworld*).

The Finder's Page Setup and Print Desktop commands are disabled when certain windows, such as About this Macintosh, the Clipboard, the Launcher, (or another control panel) are active. Click any icon or the desktop to enable those commands.

Adding Error Bars In Excel 5.0's Error Bars dialog box you can add custom error bars to the data series currently selected in a chart. Near the top of that dialog box you select the direction in which you want error bars displayed—Plus, Minus, or Both. At the bottom of the dialog box you specify the amounts to use for each direction you selected (Plus, Minus, or Both). You can specify the error amounts for each direction as an array formula or as a range of cells; you can define a cell-range reference by typing it in or by dragging across the cells.

Server Log-in Shortcuts

TIP When logging on to an AppleShare server or a System 7 file-sharing server through the Chooser, you can press ⌘-R for Registered User or ⌘-G for Guest. Eliminating an extra trip to the mouse, this shortcut is especially nice for keyboard-oriented folks.

MARK ALTENBERG
Kensington, California

Instant Reprints (Well, Almost)

TIP Some documents take quite a while to spool for background printing, and that's on top of the time it takes to open the application and the document before you can begin printing. For example, I have Photoshop files that take several minutes to spool for printing on my Color StyleWriter. I like to share prints of those pictures with my friends, but to conserve ink I rarely print more than one or two copies at a time. I devised this procedure—using Apple's desktop printing software—for eliminating spooling delays.

Before printing a file for the first time, select the desktop printer icon and choose Stop Print Queue from the Finder's Printing menu. Then print the file, causing a spool file (which the Finder calls a Desktop PrintMonitor document) to be created for the desktop printer. If you forget to stop the print queue before printing, immediately go to the Finder and stop the print queue or open the desktop printer icon and put the print request on hold. Next open the desktop printer icon and drag the spool file to any folder. When you're ready to make a print, hold down the option key and drag the spool file from that folder to the desktop printer icon. This makes a copy of the spool file for the desktop printer and leaves the original spool file untouched for future reprints. If necessary, use the Finder's Start Print Queue command to start up background printing. *Et voilà!* Reprints without spooling or opening a document and its application!

KOMRA MORIKO
Prescott Valley, Arizona

You can get the desktop printing software from Apple's online sites (listed above in "LocalTalk Joins Ethernet") as part of the LaserWriter 8.3 package or the Color StyleWriter 2400 package. The desktop printing software works with most Apple printer drivers, such as the StyleWriter II, StyleWriter 1200, LaserWriter 300, LaserWriter Select 310, and earlier versions of LaserWriter.—L.P.

The Truth about Suffix Removal

By itself Aladdin's free StuffIt Expander software can decompress or decode only four types of files—those whose names end with .sit, .cpt., .hqx, or .bin—not the long list of file types listed in January's *Quick Tips*. Doug Reider, of Roaring Spring, Pennsylvania, and other readers correctly state that you need to add Aladdin's $30 shareware DropStuff with Expander Enhancer to handle the rest of the listed file types—those whose names end with .zip, .zrc, .pkg, .gz, .z, or .uu. Both DropStuff and StuffIt Expander are included with StuffIt Deluxe, but neither one comes with StuffIt Lite.

Easy Error Bars

It turns out there's an easier method than the one presented in January's *Quick Tips* for adding different error bars to individual data points in an Excel 5.0 chart. According to Sally Swedine of Seattle, and other readers, you should lay out the data to be graphed in the usual manner, with the *x*-axis data in one worksheet column and the *y*-axis data in the adjoining columns. Use additional columns for the amounts that specify the lengths of the custom error bars. Create the chart, and then select one data series by clicking a data point on the chart (if the chart is not already selected for editing, click it and then click the data point). Choose Error Bars from the Insert menu to bring up the Error Bars dialog box and in it enter the cell range that specifies the custom error-bar amounts for the selected data series, as shown in "Adding Error Bars." Close the dialog box and then use the Error Bars command again on each remaining data series. **m**

We pay from $25 to $100 for tips published here. Send questions or tips on how to use Macs, peripherals, or software (by mail or electronically) to *Quick Tips*, Lon Poole, at the address listed in *How to Contact Macworld* at the front of the magazine (include your address and phone number). All published submissions become the property of *Macworld*. Due to the high volume of mail received, we're unable to provide personal responses.

LON POOLE answers readers' questions and selects reader-submitted tips for this monthly column. He is the author of *Macworld System 7.5 Bible*, third edition (IDG Books Worldwide, 1994).

New MasterJuggler 1.91

Take Control of Your Fonts!

Throwing every font into the System folder slows down you and your Mac. You have to put up with long font menus, slow application launching, and a bloated System folder. Your Mac can only handle 128 font suitcases so if you have a large font library, you're also forced to quit all your open applications and drag fonts in and out of the System folder. Get a grip on your fonts. Restore speed, convenience and control with MasterJuggler!

MasterJuggler gives you access to your entire font library and you can store your fonts anywhere. You can even share fonts over a network. Font sets allow you to group fonts by client, job, project, or any other category. You can open and close fonts or sets of fonts as you need them without quitting all your open applications. Using just the fonts you need makes your font menus shorter and your applications start noticeably faster.

Font Experts Choose MasterJuggler

"[Since] the Mac doesn't provide such font management luxuries... I recommend MasterJuggler [over Symantec's Suitcase]; it's easier to use and has a much more up-to-date manual."
Jim Heid, Macworld Magazine 5/95

"You should definitely consider MasterJuggler (unless, of course, your little secret is that you *like* juggling all those fonts yourself)."
Tamis Nordling, Adobe Magazine 3/95

"We recommend MasterJuggler, which matches the venerable Suitcase feature for feature (and beyond) and is *much* easier to use."
Aileen Abernathy, MacUser 8/95

Reliability & Compatibility That's Unmatched

MasterJuggler is fully compatible with all major desktop publishing and graphics software. And MasterJuggler is the only font manager compatible with System 7.5, QuickDraw GX and all Power Macs including the new PCI Macs.

Grab a copy today and take control of your fonts!

©1996 Alsoft, Inc. PO Box 927, Spring, Texas 77383-0927 USA. 713-353-4090 or fax 713-353-9868. MasterJuggler is a registered trademark of Alsoft, Inc. Other product names are trademarks of their respective companies.

THE UTILITY COMPANY

ALSOFT

800-257-6381

Circle 140 on reader service card

Nothing comes closer to reality.

"SuperScan took top honors in every important performance category"

Macworld

MW EDITORS' CHOICE

In February, Macworld editors voted the SuperScan MC 21 their "runaway favorite for focus, brightness, contrast, and color." They also praised its "sensible, intuitive controls" and "reasonable price" — hallmarks of every SuperScan MC monitor.

	NEW SuperScan Mc 21HR	SuperScan Mc 21	SuperScan Mc 20	SuperScan Mc 17	NEW SuperScan Mc 17s
Viewable Image Size	20"	20"	18.7"	15.9"	15.7"
Maximum Resolution	1600 x 1200		1600 x 1200	1360 x 1024	1280 x 1024
Scan Frequency	31-95 KHz 50-160 Hz	31-85 KHz 50-160 Hz	30-82 KHz 50-120 Hz	24.8-82 KHz 50-120 Hz	30-64 KHz 47-104 Hz

Check them out today. Each is designed specifically for Power Macintosh. So you get the best performance you can buy. For details, call NSA at 800 441-4832. Or use our faxback system at 800 555-8552.

RasterOps®

MPR II | 3-year warranty | Macintosh plug & play | Colorific

SuperScan
An advantage you can clearly see.

100 Lowder Brook Drive
Westwood, MA 02090 **NSA**

HITACHI

Circle 74 on reader service card

NetSmart

Parcel Post—Internet-Style

by Cameron Crotty

The season to be jolly may be long past, but few bad memories linger like holiday postal memories. Finding just the right gift for Aunt Gladys was nothing compared with the hours spent wrapping it in bubble-pack, nesting it in multiple boxes, and dumping in cups of packing popcorn, all so that the glass tchotchke you bought would arrive whole and not in shards.

Sending files by E-mail is faster than relying on snail mail, but your electronic messages can receive treatment every bit as rough as the caresses of the mail-delivery services. And if you don't package your files properly, they might arrive in tiny, mangled pieces.

So what happens to files sent via Internet E-mail, and how can you protect yours?

Why Encode?

To send Aunt Gladys's memento, you need enough padding to survive the crushing blows delivered by conveyor belts and other parcels. On the Internet, the crushing blows come from Internet mail servers, all of which process only text messages, and some of which deal harshly with overlong messages.

This isn't a problem if you're sending unformatted text files, but those mail servers make a quick hash of any other type of file. Known collectively as *binary* files, these include image files, sound files, applications, QuickTime movies, and formatted text documents. In order for binary files to survive, they must be *encoded* as ASCII text.

Feeding a binary file through an encoding program produces a text file that looks like a monkey has been slapping your keyboard, but contains all the information in the original file. You can attach the text file to an E-mail message, or you can copy the encoded text and paste it directly into your E-mail. Since the file is now unformatted ASCII text, you can send it through any mail server, and once the file arrives, the recipient can use software to *decode* the text, reconstructing the original file.

There are a number of quality shareware tools for encoding and decoding binary files, and I'll talk about them as I describe specific protocols. But if you spend a lot of time sending and receiving files over the Internet, I highly recommend purchasing StuffIt Deluxe from Aladdin Systems (408/761-6200, *info@aladdinsys.com*; $129.95). Not only is the StuffIt compression protocol one of the most popular in the Mac community, but it handles just about any compression and encoding protocol you will find on the Net, including most of the weird Unix and PC-compatible stuff.

How to Encode and Send

There are three main ways to encode binary files for the Internet: BinHex, UUCode, and MIME. Of these, UUCode is the oldest and MIME has the most future promise, but BinHex is a protocol that every Mac Net surfer should know.

BinHex If the Macintosh hadn't come along, we'd probably all still be sending each other UUCode (uuencoded) files. But the Mac OS has a two-pronged file structure—that is, every Mac file has a data fork and a resource fork. Generally, uuencoding isn't a problem when transferring data files such as sounds or images. But uuencoding completely ignores a file's resource fork.

Enter BinHex, an encoding scheme that preserves the Mac's dual-fork file structure. BinHex is the most popular encoding method used on Internet Macintosh archives—you can generally recognize a BinHex file by its suffix, .hqx. Most Internet archives are Unix-based, and an encoded file can be simply stored as a text file, regardless of the operating system it originated on.

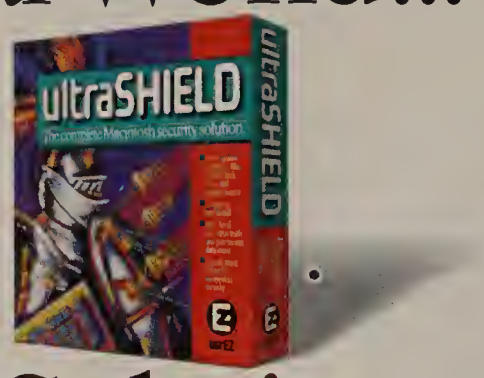
While StuffIt Deluxe is my commercial recommendation, for shareware stalwarts who need to decode BinHex files I recommend StuffIt Expander; Compact Pro from Cyclos and HQXer are also solid utilities for encoding and decoding BinHex files. Note: Do not use BinHex 5.0—it is not simply an upgrade of BinHex but uses a different encoding algorithm, making your files unreadable by other BinHex-decoding software, and it is unreliable.

UUCode UUCode was originally developed for Unix users to trade binary files using ASCII transport mechanisms. It's still in use in Usenet newsgroups, where you can download uuencoded image and sound files. You'll recognize such files from their suffix, .uu. Jeff Strobel's shareware UULite is a top-flight utility.

For a protocol, UUCode is pretty rude—it generally ig-

continues

Real World...



Real Solutions...

Real Rewards...

Magazines have heralded our security, ease-of-use, speed and compatibility. Users, the most sophisticated and demanding reviewers of all, have just voted us the #1, **"Best Macintosh Security Product,"** *Infosecurity News* competition winner.

Similarly we vote you, the Macintosh user, #1 and thank you for helping us continuously refine and expand our products.

For those who haven't yet joined our team, we welcome you and your input to our family of improving products.

Try us and see for yourself why thousands of people around the world continue to vote usrEZ #1. Demand usrEZ products at your local or national reseller. Or call your security partners at:

800-482-4622 or 714-756-5140

usrEZ

The Continuing Excellence Corporation.

© 1995 usrEZ Software, Inc. usrEZ and ultraSHIELD are trademarks of usrEZ Software, Inc. All brand names are trademarks or registered trademarks of their respective holders.

Circle 36 on reader service card

nores file types and headers—but it has widespread acceptance on the Net (mostly by the Unix crowd). Just remember: UUCode does not recognize the Mac's dual-fork file structure.

MIME MIME stands for Multipurpose Internet Mail Extensions, and it's a different approach. MIME is an attempt to build a standard to encode and transmit, then identify and decode, non-ASCII data. MIME messages are encoded text, but they also contain detailed information so that, ideally, your recipient's E-mail program can read the message, identify and decode the encoded parts, and display the entire thing. For example, you could use multiple font sizes, bold, italics, some in-line graphics, and a sound clip.

Unfortunately, not many E-mail programs specifically support MIME; three that do are Eudora Pro from Qualcomm (619/587-1121, *quest-rep@qualcomm.com*; $89), the E-mail client in InterCon's TCP/Connect II (703/709-5500, *sales@intercon.com*; dial-up–only version $195), and Claris Emailer (408/727-8227; $89). If you want to try manually sending MIME messages, Mpack (Macintosh version by Chris Newman) encodes and decodes MIME parts for you, and can also decode BinHex and uuencoded files.

Online Services If both you and Aunt Gladys subscribe to the same online service, then you're in luck. America Online, CompuServe, and Prodigy all support sending binary enclosures to other service members. You will still want to compress your attachments to reduce transfer times, but don't bother encoding anything.

America Online lets you send attached files over the Internet, and if you receive a file attachment that's been uuencoded, BinHexed, or compressed with StuffIt or Compact Pro, AOL's software automatically unpacks it. CompuServe and Prodigy do not allow members to send or receive attached files from the Internet. If you want to send a file, you have to encode it, and then paste the encoded text into the body of an E-mail message.

Why Compress?

It's generally a good idea to compress files before you encode them, for the simple reason that transferring smaller files saves time and dollars. Compression is especially important when sending files over the Internet, as encoding a file usually increases its size. Also, compressing a file gives you the

Web Worthy

Access the MIME FAQ at *http://www.cis.ohio-state.edu/text/faq/usenet/mail/mime-faq/top.html* for more information.

Likewise, the FAQ for *http://www.cis.ohio-state.edu/hypertext/faq/usenet/macintosh/comm-faq/top.html* is loaded with lots of useful telecommunications information.

The WWW Viewer Test Page site, *http://www-dsed.llnl.gov/documents/WWWtest.html*, offers several document types so you can confirm that your file viewers are properly installed. One test lets you send an E-mail message with MIME attachments.

And for more info on BinHex, visit *http://www.natural-innovations.com/boo/binhex.html*.

Shareware PICKS

This month's crop of Mac shareware tools will help you encode, compress, and send files via E-mail across the Internet.

Standing head and shoulders above other decoding and decompression utilities, Aladdin Systems' **StuffIt Expander** is fast, free, and can handle nearly anything except for MIME-encoded messages.

Those interested in more-focused utilities should try **HQXer**, a BinHex file encoder/decoder; **UULite**, a shareware UUCode utility; or **Mpack**, a tool for encoding and decoding MIME messages.

Encoding a file may protect it from the E-mail gorillas, but compressing it will protect you from excessive connect charges. **Compact Pro**, from Cyclos, can compress and expand files, encode and decode using BinHex, and create self-extracting archives.

Once your file is packaged up, you can send it with **Eudora Light**, a freeware version of Qualcomm's Eudora Pro E-mail client.

You can find these applications in the Macworld Online Software Library on America Online or on our Web site (*http://www.macworld.com*). They are in the Mentioned in Macworld section.

opportunity to protect it with a password, providing you with some level of security. Keep in mind that adding a password to a compressed archive is like locking your car doors in a parking lot: it will keep out frivolous malefactors, but a determined thief will figure out how to bust a window and grab your stereo.

If you choose to compress a file, either make sure that your recipient has the appropriate decompression software or create a self-extracting archive. A self-extracting archive (often identified by the suffix .sea) builds the decompression software into the compressed archive, so the file will automatically uncompress.

If the file is larger than 64K, an Internet mail server may *segment* your message and deliver it in two or more bite-size chunks. If you receive an encoded message in two chunks, simply use a text editor to paste the sections back together, and send the file through a decoder. If the file is corrupted in the sending, you might want to ask whoever sent you the file to use an encoder to preseg-ment the file and send it as multiple messages.

Getting your files from here to there over the Internet can be tricky, but with the proper tools and some experimentation, the JPEG file you E-mailed to Aunt Gladys might get there in better shape than that glass knickknack. m

---

Associate editor CAMERON CROTTY (*cameron@www.macworld.com*) covers telecommunications issues and the Internet, and never gets tired of watching his E-mail in-box light up.

REACHING MACWORLD ONLINE

America Online: Keyword *Macworld*

World Wide Web: *http://www.macworld.com*

Mailing list for Macworld Live's events calendar: Send an E-mail message with **subscribe** in the subject line to: *mwlive@macworld.com*

MacAcademy®

Windows™ Academy

2 Hour, Award Winning Training Videos only $49

It Takes Serious Training To Get To The Top

Computer Training Videos

It takes more than motivation to get to the top. You need the proper tools and someone to guide you along the way. Right now, hundreds of thousands of people all over the world are using MacAcademy as their personal computer guide. Our promise to you is that you will learn these programs in half the time over conventional training methods. It's time to get serious.

Please see our ad in the mail order section for a list of our videos

Full Money Back Guaranteed

Dept MW-0496 100 E Granada Blvd Ormond Beach FL 32176-1712
http://www.macacademy.com

800-527-1914 or 904-677-1918 Fax 904-677-6717

Circle 106 on reader service card

Drive a High-Res, Full Page Photoshop Image. Real-Time, Anytime with Genesis MP.

You know the tracks are there even if they're covered under seven feet of snow. You know how to get the job done. You just need more time... or more power. **Power counts.** Especially when you have to produce an image in time to make the last courier. **The less time spent waiting on Photoshop, the more time you have to be creative and still make it under the wire.**

The revolutionary Genesis MP is a powerful new Mac OS system using four of the fastest PowerPC 604 processors available. Now you can drive huge files in real-time rather than just pushing pixels.

Genesis MP runs Photoshop seven times faster than a PowerMac 8100. It's four times faster than Apple's new PowerMac 9500. Even an SGI workstation costing three times as much runs at a fraction of the speed. **Nobody does it faster than Genesis MP.**

In addition to Adobe's Photoshop, After Effects and Premiere, and Strata's Studio Pro, **over 200 Mac software titles for publishing are being boosted to multiprocessing performance.** So, it's time to make tracks. Get a Genesis MP.

Look us up on the Web at http://www.daystar.com or **call us at 800.895.2132** for some hard data on the new line of Genesis MP computers.

DAYSTAR® DIGITAL

Genesis MP: A new beginning in Mac workstation performance.

NewMedia Magazine 1996 Hyper Award · Best New Products 1995 Color Publishing · Best of Show Byte Show · MacUser Editors' Choice Award 1995 Finalist Mac OS System · MacUser Editors' Choice Award 1995 Finalist Breakthrough Product · Hot Product 1995 Electronic Publishing · Computer Artist Top Product 1995

© DayStar Digital, Inc. 5556 Atlanta Highway, Flowery Branch, GA 30542 • Phone: 770-967-2077 • Fax: 770-967-3018

Circle 7 on reader service card

Media

Sounding Good

HOW TO MAKE SOUNDTRACKS SPARKLE

by Jim Heid

Which TV viewing experience would you prefer: a crystalline picture and staticky sound, or a snowy picture and high fidelity? Concertgoers—would you rather have an unobstructed view and muddy sound, or a tall hat in front of you and plenty of volume? As priceless as both senses are, we choose sound over sight when the sound conveys information.

So why is so much multimedia audio so lousy? One reason: QuickTime movie producers rarely have the luxury of delivering sound at CD-quality specs—a 44kHz sampling rate with 16 bits of resolution. Audio that rich has fairly high data-rate requirements, and accommodating it in a CD-ROM–based movie would reduce image quality. (See last month's *Media* column for an introduction to data-rate issues.) Also, some Macs and many Windows machines can't play back 44kHz, 16-bit sound. Disk space is another issue: CD-quality stereo sound uses 10MB per minute.

The World Wide Web is even more limiting. You can post 44kHz, 16-bit sounds on a Web site, but your listeners will need ISDN lines or better, lest downloads take forever. Audio-streaming technologies, like Progressive Networks' RealAudio, eliminate lengthy downloads, but compress and downsample audio to low-fidelity levels.

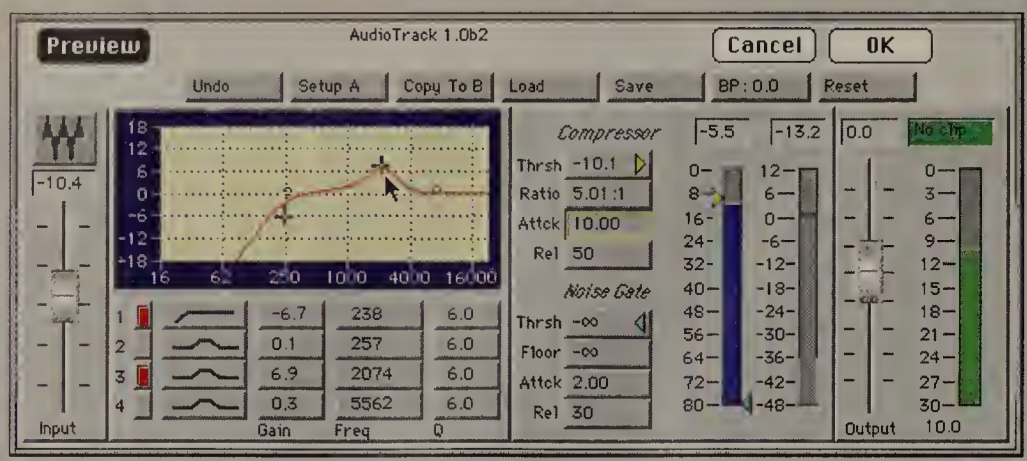
Let's look at what you can do during recording, editing, processing, and downsampling to minimize this quality loss. (To hear examples, visit *http://www.mcn.org/heidsite/*.)

Record: Strive for the Highest Quality

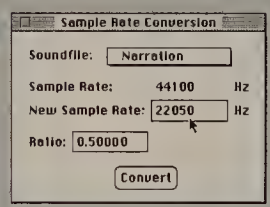
• Use the best microphone you can afford. Shure Brothers, Audio Technica, and AKG have excellent offerings for less than $150 (sold through audio and music dealers). Even a $39 public-address mike from Radio Shack is better than the mike that comes with your Mac. A tie-clip mike works well for voice recording.

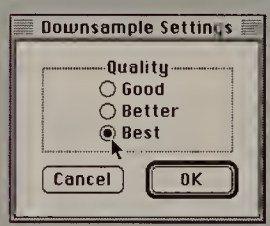
• For video work, use an external mike instead of the camcorder's built-in mike, which will pick up room noise.

• Use multiple mikes for multiple subjects. When videotaping a roundtable or a music group, dedicate a mike to each participant. Use a mixer (the $429 Mackie Designs [206/487-4333] Microseries 1202-VLZ is hard to beat) to adjust volume levels and combine the signals into

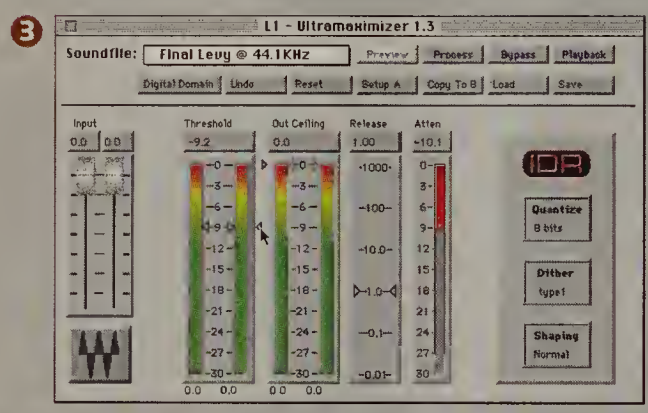


To optimize 44kHz, 16-bit audio for low-bandwidth delivery, begin by applying equalization, as shown here in Waves' AudioTrack. Cutting low frequencies removes undesirable background rumble, while boosting midrange frequencies adds some punch on low-end speakers.

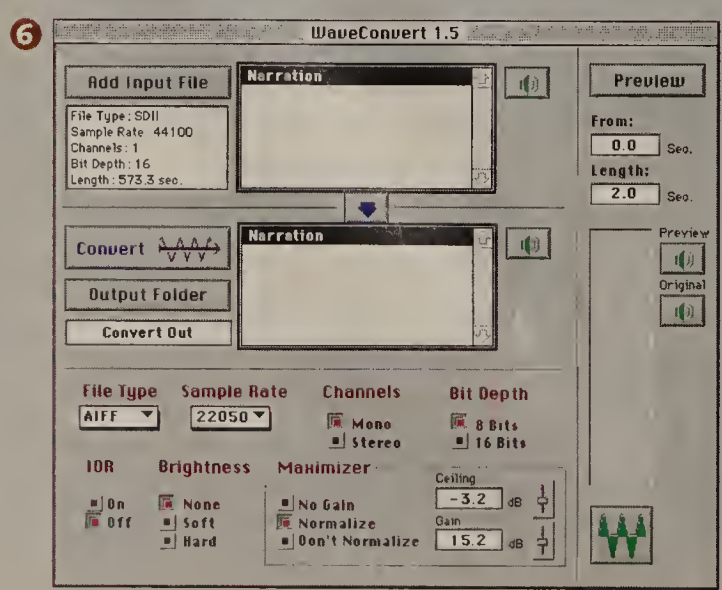




After equalization, downsample the 44kHz file to the desired sampling rate (see the sidebar "A Field Guide to Formats") as shown here in Digidesign's Sound Designer II (top) and Adobe Premiere 4.2 (bottom).



Waves' L1-Ultramaximizer, a plug-in for Digidesign audio hardware, boosts a soundtrack's volume, shapes its waveform for optimal quality, and optionally reduces its bit depth from 16 to 8. Always apply L1 as the final step in an audio processing job. (4) Before L1 processing. (5) After L1 processing: note the overall increase in loudness.



Waves' WaveConvert utility packs downsampling, format conversion, and level optimization features into one dialog box. It's an ideal alternative to costlier utilities such as L1.

one track (for mono recording) or two (for stereo).

• Position mikes properly. If you're recording to the Mac's hard drive (rather than to a video recorder, for example), move the mike away from the hard drive and fan, which are noisy. Record in an acoustically *dry* room (one without echoes). To test a room's dryness, clap once and listen; if that clap reverberates, spread carpets and hang drapes on the walls to deaden echoes.

• Set the levels of recording software properly. Adjust the levels so that the on-screen volume meter reaches the upper end of its range during loud passages. To avoid distortion, however, make sure the meter's clipping indicator doesn't illuminate during loud peaks.

• Record at 44kHz, 16-bit, with no compression, using a Power Mac or 680X0 AV Mac. See "The Mac Recording Studio," *Macworld*, December 1995, and "Multimedia Secrets," August 1995, for details on audio settings and products.

Edit: Refine Your Material

• Delete awkward pauses and flubbed words in recorded narration or interviews. Do a cutaway to a different subject at edit points. Or do a brief cross-dissolve at the edit point; this prevents a jarring cut in which the speaker jumps from one position to another.

• To edit using Adobe Premiere or Avid VideoShop, use a sound-editing program—these mainstream video-editing packages don't have waveform-editing features. Macromedia's SoundEdit 16 works well; Digidesign's Sound Designer II is better still but requires a dedicated NuBus card. Macromedia's (formerly OSC's) Deck II works, too, but it's better suited to multitrack recording than to waveform editing. Regardless of the audio editor, you must go through an export/import routine to edit the soundtrack (see the screen shots "Editing Sound").

Process and Downsample: Finishing Up

• Perform edits at the 44kHz, 16-bit level. Unless the final product is for videotape or broadcast, you will eventually downsample the audio to a lower sampling rate and perhaps to 8-bit resolution. (If you do this with a video-editing package or a program such as SoundEdit 16, you'll get soundtracks containing an annoying hiss.)

Optimizing sound quality while downsampling and converting bit depths

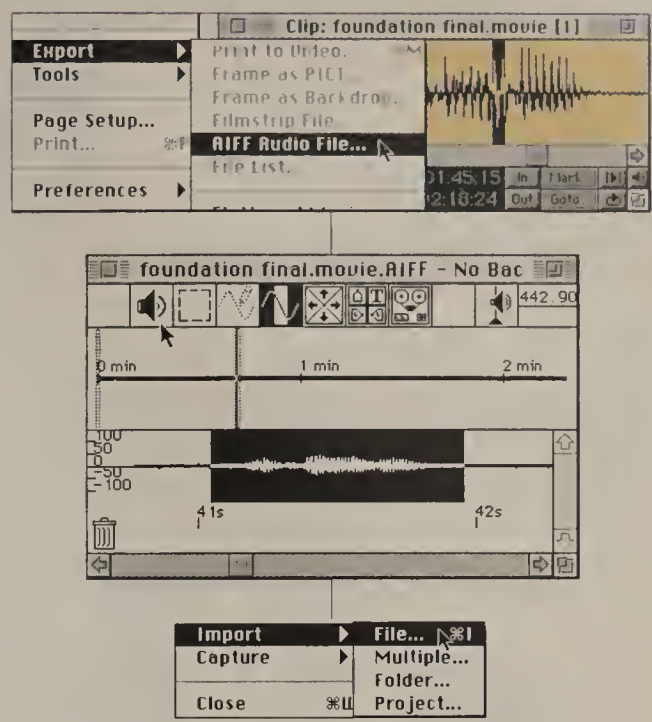
requires you to perform a variety of steps in a specific order (see the sidebar "Steps to Better Soundtracks"). It also requires additional software, the best of which comes from Waves (423/588-9307, *waves @waves.com*; note that Waves' products require a $100 hardware dongle). The L1-Ultramaximizer ($600 or $800) boosts a soundtrack's volume and shapes its waveform to provide the best sound quality with the least amount of noise—the results are amazing.

The full bundle of Waves utilities sells for $1650 to $2300. The utilities work best as plug-ins for Digidesign Audiomedia II cards or Pro Tools III systems, but they aso run on Power Macs with no additional hardware. Still, they may be overkill or at least overbudget for most multimedia producers. Great news: Waves has released two products that provide the most essential processing functions and don't require a dedicated audio card when used on a Power Mac. AudioTrack ($300) provides equalization, compression, noise gating, and more; it works with Digidesign hardware as well as Adobe Premiere and programs that use the Premiere plug-in format.

For downsampling, bit-depth conversion, and the level-maximizing marvels of Waves' L1-Ultramaximizer, get WaveConvert ($300), which also lets you batch-convert audio files. Because it is a stand-alone program (not a plug-in), you must endure the export/import routine described in "Editing Sound" to apply WaveConvert's talents to movie soundtracks. The results are worth the effort. (Version 2.0 of Macromedia's SoundEdit 16 provides improved downsampling features as well as a plug-in architecture that Waves has announced it will support.)

EDITING SOUND

Editing a QuickTime movie soundtrack in an audio program requires an export/import routine, like the one shown here in Adobe Premiere 4.2.



Top: In the Construction window, double-click on the movie clip's soundtrack to display its waveform (behind the menu). Then, choose AIFF Audio File from the File menu's Export submenu.

Middle: Import the AIFF file into an audio program and edit.

Bottom: Import the file back into Premiere and synchronize it with the video track.

Sound Advice

Indeed, all the effort you put into optimizing audio pays off. CD-ROM consumers or Web surfers may forgive slow movie frame rates or low-resolution graphics, but they'll remember the headache that bad sound gave them. You'd probably rather be remembered for something else. **m**

Next month: Optimizing graphics for CD-ROMs and the Web.

Contributing editor JIM HEID's interactive CD-ROM accompanies his *Macworld New Complete Mac Handbook*, fourth edition (IDG Books Worldwide, 1995). He also produces audio segments for Radio Macworld (*http://www.macworld.com/tccafe*).

A Field Guide to Formats

Here are some of the formats you'll need to know when producing audio files for CD-ROMs or Web sites.

CD-ROM

Sampling Rate For music, 22.05kHz (exactly half the CD-quality 44.1kHz rate) delivers reasonable fidelity. For voice, 11.025kHz may be acceptable.

Bit Depth You get cleaner sound with 16-bit audio but 8-bit takes only half the space. Also, you should license Apple's Sound Manager 3.1, which is Power Mac native, for your title—versions before 3.0 don't support 16-bit sound.

Compression Sound Manager 3.1 and QuickTime 2.1 (not QuickTime for Windows, yet) support the Interactive Multimedia Association's IMA 4:1 compression scheme. IMA audio sounds good, but it may play poorly on slower Macs.

THE WEB

File Format By using QuickTime 2.1 with Apple's Movie Player 2.1 or Macromedia's SoundEdit 16 2.0, you can create the popular AU, or Sun audio, format files. Many sites encode AU audio as 8kHz, 16-bit files using the µLaw compression scheme. Movie Player 2.1 can export µLaw-format audio, although you must manually enter sampling rates lower than 11.025kHz in the Sound Export Options dialog box's Rate text box.

Audio utilities and QuickTime movie editors can also export and import Audio Interchange File Format (AIFF) files.

To play AU or AIFF files immediately after downloading them, a Web browser needs to launch an audio-helper application such as Norman Franke's freeware SoundApp.

Hearing audio while a file downloads requires a streaming technology such as Progressive Networks' RealAudio (*http://www.realaudio.com*). RealAudio 2.0 uses a higher sampling rate and provides significantly better quality than the previous version, but you need a 28.8-Kbps or faster connection.

New streaming technologies that rely on MPEG compression include StreamWorks from Xing Technology (*http://www.xingtech.com*) and MPEG/CDE from Kauai Media (*http://www.electriciti.com/kauai*).

Tip: Provide audio files in a compact, low-fidelity form and in a larger, high-fidelity form, and let Web site visitors choose.

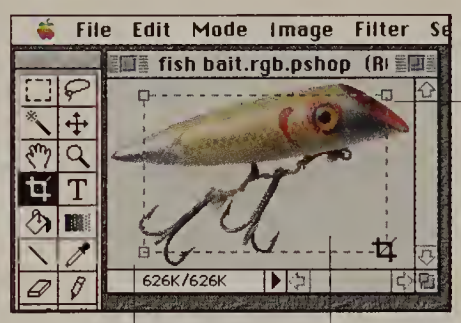
Publishing Workshop

Cropping and Clipping

by David Blatner

Maybe you want to get rid of your ex-spouse. Or perhaps it's the background behind a gift that has to go. No, I'm not using *get rid of* in the mobster sense—I mean "remove from a photograph." In the real world, if you don't like something in a picture, you take out a pair of scissors and trim it off. In the electronic world, cropping and clipping is a little more complex. In this article I focus on cropping bitmapped images.

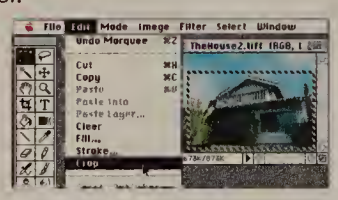
Printing a cropped image can take 20 minutes or 2 minutes depending on what file format you use to save the file. In real life, each photograph or negative takes about the same amount of space. But in the electronic ether, every image bit takes up space on your hard drive, in RAM, and—when you print—in traffic over the network.



To rotate and crop at the same time, hold down the option key when you drag. Move the cropping rectangle by holding down the ⌘ key and dragging a corner.

Resize the cropping rectangle by dragging a corner.

When you're ready to make the crop, click inside the rectangle. To cancel the crop, click outside the rectangle.



Selecting Crop from the Edit menu discards everything outside the selection.

CROPPING IN PHOTOSHOP

To crop a scanned image in Photoshop, either use the crop tool, or make a rectangular selection with the marquee tool and select Crop from the Edit menu. In either case, Photoshop discards pixels; after you save the image, you can't get them back.

Cropping the Image Data

If you crop an image in Adobe Photoshop (or in a similar image-editing program) and then save the file with exactly the same name, the program throws away the cropped pixels—you can't go back and retrieve that image data (see "Cropping in Photoshop"). Because the new image contains fewer pixels, it takes up less space on your hard drive and in RAM, and makes less traffic on the network.

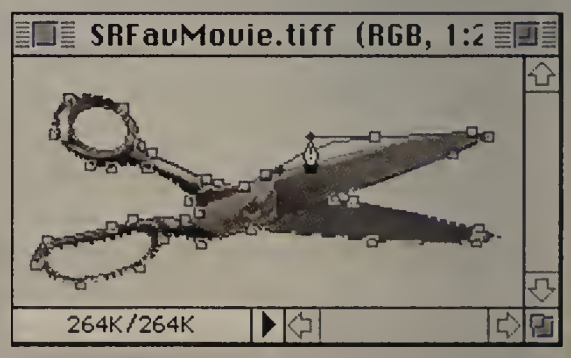
Cropping and Page Layout

If you crop an image in a page-layout application, like Adobe PageMaker or QuarkXPress, the full image remains available to the application; it's simply not all visible on the page (this is also true for Adobe Illustrator and Macromedia FreeHand). That is, the application doesn't modify the original file on your disk, so you can always go back and change your mind (see "Page Layout and Cropping").

However, the entire image (or a low-resolution preview of it) also remains inside your page-layout file, taking up space. Let's say your design calls for three head shots, but all you have is a group photo. Don't import the picture into your page, crop to select the first head, then import the photo again and crop for the

Photoshop Clipping Paths

PostScript clipping paths can be any shape, but the file can take a long time to print or, if the paths are very complex, may not print at all.



1. Use the pen tool to draw Bézier paths in Photoshop. One path can contain multiple, unconnected paths.

second, and so on. Instead, use Photoshop's cropping to isolate each head and import the three small files individually.

When you print your document, the page-layout program uses either of two methods to crop the image, depending on the image's file format. Either the program sends just the image data it needs to output the cropped image to your PostScript printer, or it sends the entire image to the printer along with instructions on how you want to crop it (called a *clipping path*).

TIFF versus EPS

When you crop a TIFF image in QuarkXPress or PageMaker, the program sends only the image data necessary to print the job. On the other hand, if you have a 10MB EPS (encapsulated PostScript) file and you crop it down to a small square, the program sends all 10MB to the printer when you print your page. That means using TIFFs can offer an incredible time savings *every time you print.*

Sometimes, however, you have to use an EPS—for duotones or clipping paths with XPress, for instance. In that case, first crop the image in Photoshop to get the smallest file possible. (By the way, you already know you shouldn't use PICTs, right? They're not suitable for professional print publishing work.)

Time-Consuming Calculations

When the printer receives a clipping path, it performs the time-consuming task of carefully clipping out the unneeded parts of the image. Note that a clipping path is always a set of lines or curves, just like those from FreeHand or Illustrator—you can't have a clipping path with soft edges.

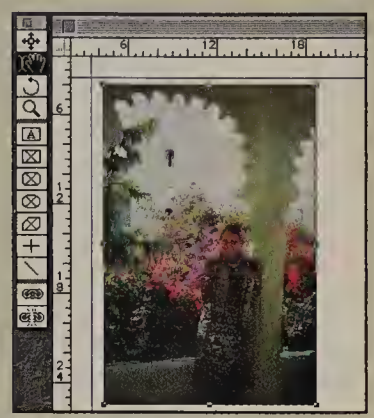
Let's say in real life you want to crop a photograph to a smaller rectangle with a pair of scissors. That's fast, right? Four snips and you're done. But if you want to pare it down to an oval, that might take you a little longer. PostScript printers have the same problem. The more curves or lines make up the clipping path, the longer the printer takes to perform the task.

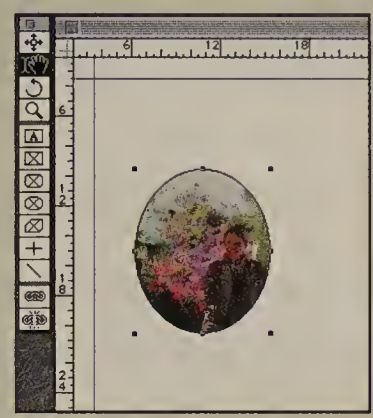
Clipping Paths

You can make a nonrectangular crop in Photoshop, Illustrator, or FreeHand by drawing your own clipping path. In Illustrator you use the Mask feature; in FreeHand you use Paste Inside. In Photoshop you use the path tools, save the path with a name, then set it to be a clipping path (see "Photoshop Clipping Paths").

PAGE LAYOUT AND CROPPING

When you crop an image in a page-layout program, you can always recrop for a different effect. In PageMaker you can use the cropping tool or the Mask feature; in QuarkXPress you make the picture box smaller or change it to a different shape (like a polygon or an oval).



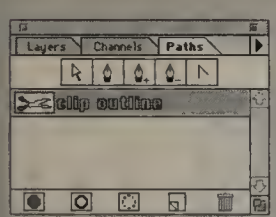


You now save the image as a TIFF or an EPS. However, at the time of this writing, only PageMaker recognizes TIFF images that have embedded clipping paths.

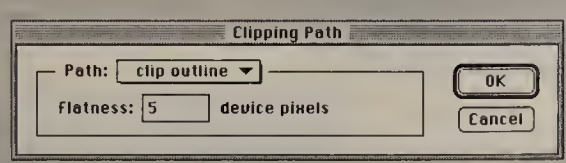
Clip or Crop

While many operations are easier on a computer than in the real world, it's clear that cropping and clipping are not among them. Seemingly minor differences in how you crop can be costly in minutes (which translate to dollars) spent on a project. I like using TIFFs whenever possible, especially when I might be cropping in my page-layout application. My first choice is always to crop the image even before I get to PageMaker or QuarkXPress. **m**

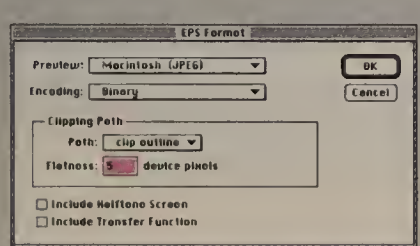
DAVID BLATNER is the co-author of several books, including *Real World Photoshop, The QuarkXPress Book, Real World Scanning and Halftones,* and *QuarkXPress Tips & Tricks* (all Peachpit Press). He presents at seminars and conferences around the country and in Japan. You can E-mail him at *david@moo.com.*



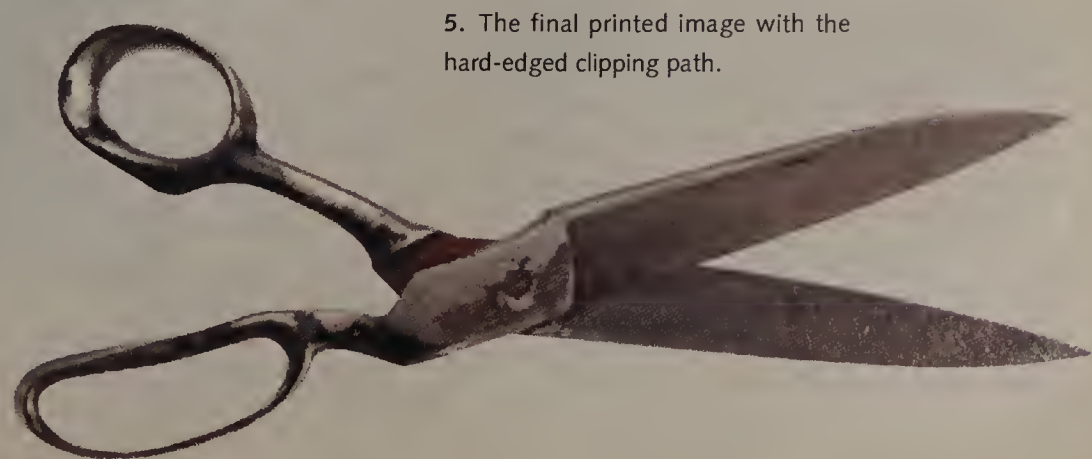
2. Save the path in the Paths palette by double-clicking on the path.



3. If you use PageMaker 6, you can save the image as a TIFF file. Choose Clipping Path in the Paths palette to turn the path into a clipping path.



4. If you save the image as EPS, set the path as a clipping path. Don't forget to set Flatness to 4 or 5.



5. The final printed image with the hard-edged clipping path.

Graphics Workshop

Creating and Using Customized Brushes in Painter

by Cathy Abes

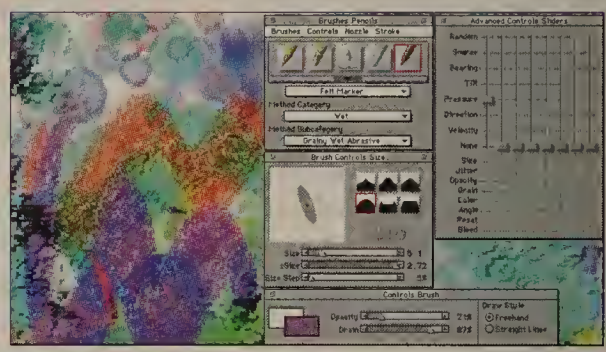
ARTIST: At his studio, Portrayals, in Palo Alto, California, Jeremy Sutton uses Fractal Design Painter to create a wide variety of portraits, from celebrities to ordinary people. His clients have included Apple, DreamWorks, and Virgin Atlantic Airlines. Armed with his PowerBook, Sutton frequently paints on-the-spot portraits—such as this one.

HOW IT WAS DONE: Sutton likes to push Painter's natural-media capabilities to the limit by customizing brushes to create particular effects. Here's a sampling of the ones he used in this portrait.

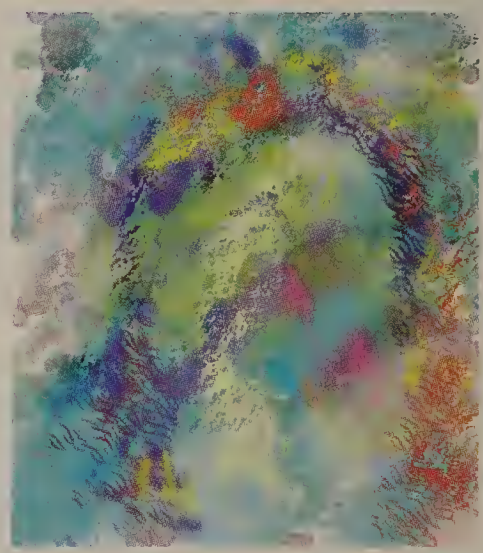
With a brush he called Viscous Mix, used mostly in the background areas, Sutton created a bubbly look, as if an oily base were rejecting a watery paint. Sutton saved each customized brush as a Brush Look (by choosing Brush Look Designer in the Brushes palette), which stores it in the Brush Looks library for future use.

Sutton used a brush he called Mountain Crumple, based on a paper texture called Mountains, to create the red and yellow spongy texture at the top of the hair. The brush used for the yellow-orange glowing highlight at the lower right he called Colored Distorto.

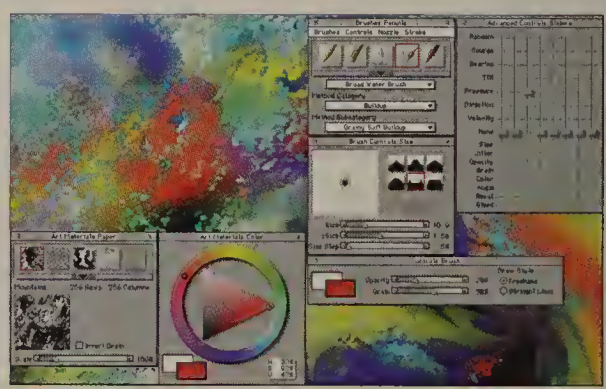
He created the hair texture with a standard large chalk and a paper texture, Rapunzel, from a library called Textures 2; he used Invert Grain to get just the wavy lines instead of the color between the lines. Moving the grain slider down to 12 applied the color only to the raised areas of the paper texture, accentuating the grain. Lowering the opacity to 50 percent gave him more control over the buildup of color. m



1 To create the Viscous Mix brush, Sutton set Brush Type to Felt Pens; he set Brush Variant to Felt Marker, Method Category to Wet (simulating a watercolor brush in the Wet layer); and he changed Method Subcategory from its default, Soft Variable Buildup, to Grainy Wet Abrasive.

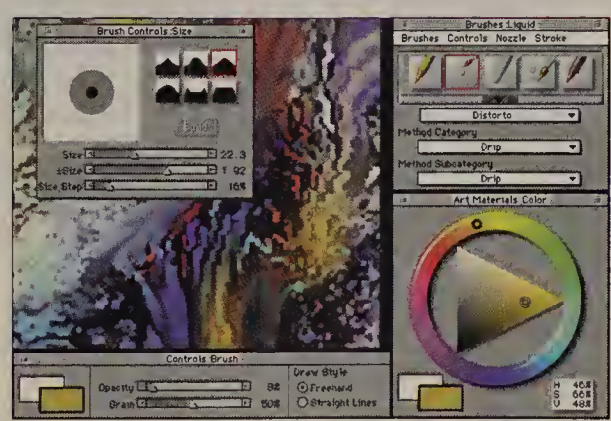


2 In the Size palette, he moved the Size slider to 6.1 and the ± Size slider to the maximum; he entered 5 percent as the Size Step to set a minimum and maximum brush diameter that he could adjust interactively by changing parameters in the Advanced Controls: Sliders palette. There he set Pressure to modify Size; this let him vary the brush size as he painted—the more pressure he used, the larger the brushstroke.



3 For the brush called Mountain Crumple (used to create the red and yellow spongy texture visible in the top of the hair), he chose the Mountains paper texture (from the Texture Sampler library). He set Brush Type to Watercolor, with Broad Water Brush as the variant; he set Method Category to Buildup, and changed Method Subcategory from the default, Soft Buildup, to Grainy Soft Buildup.

❹ These changes applied brushstrokes to the background canvas, rather than the Wet layer, which brought out the grain of the underlying paper texture by applying color to the upraised areas and darkening that color.



❺ To create the Colored Distorto brush, Sutton used Liquid as the Brush Type, with the Distorto variant; he chose Drip as both the Method Category and the subcategory. After setting Opacity to 8 percent, he changed the color to a yellow-orange and painted over a blue area.

❻ For the hair, he used a standard large chalk with a paper texture, Rapunzel, from a library called Textures 2. Using Invert Grain and moving the grain slider down to 12 enabled him to apply color only to the raised areas of the paper texture, the wavy lines that make up the hair.

THE TOOLS

Hardware: PowerBook 280c with 24MB of RAM and 325MB internal hard drive; Wacom ArtZ II 6-by-9-inch graphics tablet.

Software: Fractal Design Painter 4.0.

Conflict Catcher 3™

WINNER!

1995 MacUser Eddy Award for Best New Utility!

"Pros: Superb conflict-testing features… Cons: None."
Macworld 9/95
MACWORLD MW ★★★★★

"No matter what you do with your Mac, odds are you need this utility."
MacWEEK 5/8/95
MacWEEK

"Don't start up without It."
MacUser 8/95
MacUser 3½

WATCH FOR OUR NEXT TWO STAR-STUDDED COMING ATTRACTIONS

- **Spell Catcher™**, formerly Thunder 7™ — the interactive, go-everywhere spell checker
- **Keep It Simple Solutions™** — "makes calculations as simple as dragging & dropping" MacWEEK

Conflict Catcher 3 sets the industry standard for startup file management and conflict identification.

As the only Mac utility to ever receive a **5 Star** rating from **Macworld**, a **5 Diamond** rating from **MacWEEK** and the **MacUser Eddy Award for Best New Utility**, the editors say you need Conflict Catcher 3 —we know it will save you time and money!

The Douglas Stewart Co.

INGRAM MICRO

C&G CASADY & GREENE

Accelerated for Power Macintosh

1-800-359-4920 Sales, 408-484-9228 Tech Support, 408-484-9218 Fax
22734 Portola Dr., Salinas, CA 93908-1119 URL: http://www.casadyg.com

MERISEL

Circle 58 on reader service card

Buyers' Tools

Affordable Color Printers

INK-JET DEVICES MAKE COLOR ATTRACTIVE, DESPITE SLOW OUTPUT

by Peter M Stoller

Only a few years ago, "affordable, quality color printing" was an oxymoron. Today, it's a standard term in the SOHO (small office/home office) lexicon—printed in four-color liquid ink. Low-cost color ink-jet printers are used daily for everything from colorful correspondence to eye-catching presentations. The available print stock—from plain paper to transparency film—helps make an ink-jet printer surprisingly versatile.

With this growing variety of applications has come a growing variety of printers. To help you pick the right one for your needs, we compared six current mainstream models. All work on the same principle: spraying dots of cyan, magenta, yellow, and (with one exception) black ink to reproduce a rainbow of colors. (The Canon BJC-210 combines the three primary colors to produce black.) That doesn't make the printers the same, though; indeed, we discovered just how different they can be.

Macworld Lab subjected the printers to a battery of speed tests, pumping out reams of text and complex graphics and photographs. Then we laid output samples before our panel of experts, who judged image quality. We found several good options—but the right choice depends on your needs.

KEVIN CANDLAND

Expect to Be Impressed

The strength of ink-jet printers is their ability to produce high-quality output at a reasonable cost. These machines print at resolutions as high as 720 dpi—higher than many laser printers. That doesn't mean better output, though. Ink soaks into paper, blurring details. But using special coated papers can reduce ink spread.

Our panel compared the printers' plain- and glossy-paper output of an Adobe Illustrator EPS graphic, an Adobe Photoshop color photo, and a multifont Microsoft Word document.

The Canon BJC-4100 was the favorite in all the plain-paper tests, with the richest colors and clearest details. Apple's StyleWriters are based on Canon print engines, yet the StyleWriters' output was inferior to the 4100's; we credit the driver, from GDT Softworks' PowerPrint driver/cable package (604/291-9121; $149), for the BJC-4100's superior output. (We used GDT's software because it is the only Macintosh driver available—Canon does not provide a driver.)

That result surprised us. With its own driver, the StyleWriter 2400 prints at 720 by 360 dpi in black-and-white mode, while the BJC-4100 with GDT's driver supports only 360 by 360 dpi, yet the BJC-4100's output quality was superior (GDT says its 720 by 360 upgrade should be available by the time you read this).

The Epson Stylus Pro has the highest resolution, 720 by 720 dpi. However, that resolution requires special paper; on plain paper the Stylus Pro is restricted to 360 by

360. The Stylus Pro washed out on graphics at 360 dpi, but it did fine on text—which is what you'll care most about when printing on plain paper.

The Hewlett-Packard DeskWriter 660C was a distant last on the text test; its output was so oversaturated that the entire document appeared to be in bold type, even in Best mode at 600 by 600 dpi—the highest plain-paper resolution of any printer we tested.

When we switched to glossy paper, the Stylus Pro shone. At 720 dpi, it easily took the gold for the Photoshop and text tests. Unfortunately, it exhibited severe banding in otherwise excellent Illustrator output, giving the BJC-4100 with PowerPrint the edge.

But in our Illustrator test, Apple's 2400 gained an even bigger edge when we installed GDT's $149 StyleScript, an Adobe PostScript Level 2 interpreter just for StyleWriters. In fact, the 2400 jumped from the bottom of the heap to first place. The StyleScript output earned a nearly perfect score from the judges.

Holding down the low end were the HP DeskWriter 660C and Color StyleWriter 2200. The former had poor color accuracy and blocky text; the latter, a miniature printer geared toward travelers, produced slightly washed-out colors and lost some image detail.

Color Ink-Jet Printers: Quick Facts on Slow Printing

Company	Printer	Star Rating[A]	List Price	Telephone
Apple Computer	Color StyleWriter 2200	★★★★/7.0	$419	408/996-1010
	Color StyleWriter 2400	★★★★/7.2	$429	408/996-1010
Canon Computer	BJC-210	★★★/6.2	$299[B]	714/438-3000
Systems	BJC-4100	★★★★/7.1	$399[B]	714/438-3000
Epson America	Epson Stylus Pro	★★★★/7.2	$999	310/782-0770
Hewlett-Packard	HP DeskWriter 660C	★★★/6.3	$499	208/323-2551

[A] Based on features, implementation, innovation, performance, reliability, ease of use, and value. (See Star Ratings section for full ex

LocalTalk access. [D] Requires Epson's special coated paper; restricted to 360 × 360 on plain paper.

Expect to Wait for Output

If quality output and cost-effectiveness are an ink-jet printer's strengths, speed is its weak spot, due to slow print mechanisms, serial-port bottlenecks, and dependence on the Mac for image processing. This last point means print speeds vary with different Mac models; note that only the Apple and GDT drivers are Power Mac–native.

Even with Power Mac–native drivers, print speed for a full-page graphic was about 10 minutes in our tests. The DeskWriter 660C took two to three times as long. The Stylus Pro took a mere 5 to 6 minutes per page at 360 dpi, but switching to 720 dpi quadrupled print time—not surprising, since a 720-dpi image contains four times as many pixels as a 360-dpi one. (See the benchmark "Performance: Color Ink-Jet's Achilles Heel.")

For printing black-only documents, Apple has an ace up its sleeve: the High-Performance Black Ink Cartridge, which is included, increased speed more than three times. (Canon projects similar performance gains with its black-only cartridges, available as an option.)

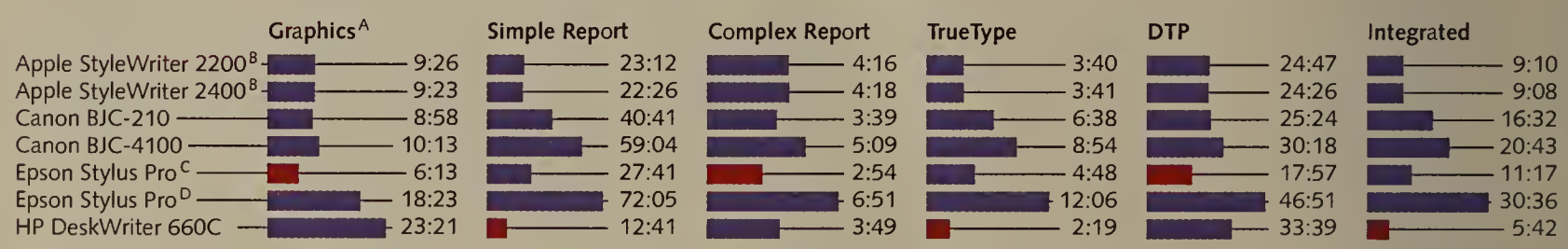
Driver settings also impact printing speed. In the most extreme case, the Stylus Pro printed text more than six times as fast when set to 360-dpi, high-speed

MW LAB

Performance: Color Ink-Jet's Achilles Heel

The ideal color printer would, of course, print instantly, produce perfect output, and cost nothing. But when you shop for a printer in the real world, you have to stake a claim somewhere within the three axes of the ideal. Color ink-jet technology gets you pretty close to cost-free; it also gets you within sight of perfect output. Unfortunately, where color ink-jet lets you down is in printing speed—some of the printers we benchmarked took several minutes *per page,* even on relatively simple documents.

Best result in test. Products are in alphabetical order. All times are in minutes:seconds. Shorter bars are better.



[A] Averaged scores of three tests (printer ranks and score spreads are similar in all three). [B] Performed some text-intensive tests about three times as fast when equipped with all-black cartridge than when equipped with standard four-color cartridge. [C] Set for 360 dpi. [D] Set for 720 dpi.

BEHIND OUR TESTS

Macworld Lab tested the printers with a series of real-world files. The Graphics score is an average of print times for an Illustrator file, a Photoshop file, and a PowerPoint file; because none of the printers have built-in PostScript, print times for PostScript and non-PostScript graphics were quite similar, and other graphics applications should show similar performance. The text-intensive tests, in particular the Simple Report test with a single font in three styles, require little processing and are therefore good tests of each printer's print engine. The DTP and Integrated tests mix PICT, TIFF, and EPS images and colored text in a variety of fonts to see how each printer copes with complex files.

We tested all printers on a Power Mac 7100/80 running System 7.5.1 with 24MB of RAM and an internal 700MB hard drive. All printers were connected to the serial (modem) port. Both Canon printers required GDT Softworks' PowerPrint. Drivers were configured for best quality.—**Macworld Lab testing supervised by Mark Hurlow and Jeff Sacilotto**

Maximum Resolution	Ports (included/optional)	Options	Warranty (in years)
720 × 360 black; 360 × 360 color	serial/none	GDT StyleScript $149; battery attachment $129; rechargeable battery $79	1
720 × 360 black; 360 × 360 color	serial/LocalTalk $105	GDT StyleScript $149	1
360 × 360	parallel/[C]	BC-02 black-only cartridge $25	2
360 × 360	parallel/[C]	BC-20 black-only cartridge $29	2
720 × 720[D]	parallel, serial–LocalTalk $149; Ethernet $499	Epson PostScript interpreter with Pantone color calibration $250	2
600 × 600 black; 600 × 300 color	serial, LocalTalk/none	none	3

n.) [B] Requires PowerPrint ($149; GDT Softworks, 604/291-9121). [C] GDT Softworks' PowerPrint/LT ($299 for 25 users) provides

mode, and black and white, than with standard settings. At 2 pages per minute, it performed fastest. At 720 dpi, however, text printing was so slow that we'd reserve it for applications where high-quality text is critical.

Fill 'Er Up

Refills are a substantial hidden cost of operating an ink-jet printer—up to $35 for color ink alone. The Canon and Apple ink tanks ran out midtest. The Epson and HP cartridges didn't, thanks to their larger capacities. Epson's and HP's consumables are less expensive than the other vendors', but how much less is hard to gauge. Estimates for consumables' life spans vary widely from vendor to vendor, being based on different—and dubious—criteria. We didn't come close to Apple and Canon's estimated 100 pages per ink tank, for example, because we printed full-page graphics, while they base their estimates on far less ink per page. Even using Apple's generous estimates, the Color StyleWriter 2200 costs a sobering $1.10 per color page for ink alone about three times as much as any other printer.

You'll be refilling more than just ink wells, of course. All these printers come standard with a 100-sheet plain-paper tray, save the Color StyleWriter 2200, which takes only 30 sheets. They all handle a wide variety of media types and sizes. At $25 for 200 letter-size sheets, Epson's special 720-dpi paper isn't cheap, but some other premium coated papers cost as much.

Talking to the Printer

Users can share Apple's StyleWriters via the bundled ColorShare software, but ColorShare ties up the host machine whenever anyone on the network prints. A $105 option adds LocalTalk networking to the Color StyleWriter 2400, but that option is not available for the Color StyleWriter 2200.

Epson offers both LocalTalk and Ethernet options for the Stylus Pro, at $149 and $499, respectively. Ethernet, though pricey, would really speed up those 720-dpi data transfers. For the Canon printers, GDT offers PowerPrint/LT ($299 for 25 users) for LocalTalk networking—not exactly economical compared with Apple's and Epson's hardware options. Only HP's DeskWriter 660C comes with LocalTalk as standard equipment.

Getting Set Up

The Color StyleWriter 2400 comes ready for the desktop, but batteries aren't included with the portable Color StyleWriter 2200. For true portability, you need the $129 battery attachment. Both the DeskWriter 660C and the Stylus Pro lack a serial cable; the cable is less than $10 extra, but think how you'd feel if you got your new printer home and then discovered you couldn't use it.

Aside from this, setup couldn't be easier. Installing the ink cartridges is literally a snap. Then you just plug in a cable, run an installer, and restart. It shouldn't take more than ten minutes to get any of these printers up and running.

The Last Word

We weren't wowed by the DeskWriter 660C's poor output and speed, nor by Canon's also-ran BJC-210, but all the other printers are fine choices for the right user.

The Stylus Pro costs twice as much as the other printers, but you get what you pay for in print quality and flexibility. For the best graphics in this bunch, get the PostScript option and the special paper—and a deck of cards for playing solitaire. If you print only business letters and bar graphs, the Stylus is overkill.

The BJC-4100 and Color StyleWriter 2400 are nearly identical. With PowerPrint, the BJC-4100 prints slightly better and costs slightly more. Apple's printer comes with ColorShare, works with StyleScript, and has a relatively inexpensive LocalTalk option. The BJC-4100, however, has a longer warranty and works with PCs; the StyleWriter is Mac only. Either one will nicely complement the average desktop.

Finally, the Color StyleWriter 2200 is the only choice for color printing on the go, and it's close to the equal of the Color StyleWriter 2400 in output quality. However, the high cost of consumables and the lack of a LocalTalk option make it appropriate only for road warriors. **m**

PETER M STOLLER (*afcpeters@aol.com*) is a Los Angeles–based Macintosh consultant. He delights in solving arcane Mac problems in America Online's Mac OS forum.

COLOR INK-JETS

Macworld Lab tested six color ink-jet printers to compare for speed, color accuracy, and image clarity.

High End

★★★★/7.2 **Epson Stylus Pro** This printer is in a class by itself when it comes to output quality and features. For an ink-jet it's expensive, but graphics professionals should consider it as a low-cost alternative to a dye-sublimation printer. **Company:** Epson America. **List price:** $999.

Midrange

★★★★/7.2 **Color StyleWriter 2400** It produces exceptional PostScript graphics with GDT StyleScript. **Company:** Apple Computer. **List price:** $429.

★★★★/7.1 **BJC-4100** This printer noses past Apple's StyleWriter 240 in most output-quality categories. **Company:** Canon Computer Systems. **List price:** $399 (requires PowerPrint, $149).

REAL BIG COLOR®

starting at $12,995*

The solution for all your digital printing needs—from color laser copier originals to 54-inch Big Color.

ColorMark™ Color Management System Prints Right—First Time, Every Time℠

Real Big Color® comes only from LaserMaster. And it's now available at a price that will make your spirits soar!

Now every business can afford the consistent, accurate color and photo-realistic quality that have made DisplayMaker™ Pro *The Professional's Choice* for large-format digital color printing.

The new ColorMark Software/RIP provides outstanding color, fast file processing, and other productivity features that make Big Color printing simple and efficient.

Get affordable, gorgeous, real Big Color. Call for details today!

(800) 428-5936 DEPT. L74

LM® LASERMASTER®

The Professional's Choice®

Made with PRESSMATE FILM

Corel Optimized

* Requires a dedicated Windows™ NT-compliant system.

©1996 LaserMaster Corporation. (612) 944-9330; In Europe call: (31) 2356-22000. These products incorporate the PowerPage interpreter from Pipeline Associates, Inc. Prices in U.S. dollars and valid in the U.S. only. Prices and specifications subject to change without notice. This ad was produced using PressMate™-FS chemical-free film. Contact us on the Internet at http://www.lasermaster.com

Circle 103 on reader service card

NEWTON WORLD

CONNECTIVITY
Communicating With Newton

REAL PEOPLE
Newton 2.0 Goes to Work

NEW APPLICATIONS
Mobileware for Business and Pleasure

Edited by
Bronwyn Fryer

This is your brain.

This is your brain, with Locomotion.™

Link-Optimized Contact & Opportunity Management for Professionals in Motion!

Suffering from information overload?

Introducing **Locomotion**™ from PenUltimate,™ Inc.*– the first *truly mobile* contact and opportunity manager that helps you eliminate mental clutter and focus energy on fulfilling your professional and personal *opportunities*.

It runs on the ultra-portable Apple® MessagePad™ (and other PDAs equipped with the Newton™ 2.0 Operating System) so it fits in your hand, pocket, purse or briefcase. Desktop computers are invaluable tools for organizing and managing impossibly large volumes of data... that is, as long as these tools are readily accessible *and* convenient.

The Apple® MessagePad™

With its very powerful linking and searching capabilities, **Locomotion**™ on the Apple® MessagePad™ can be used *anywhere* to record, manage, organize and access information quickly and easily.

And, when remote access to a central server is required, multiple **Locomotion**™ users can easily exchange, synchronize and consolidate any or all of their information with **Locomotion**™ for Windows,™ a complementary, PC-based utility. **Locomotion**™ for Windows™ provides selective backup into an MS-ACCESS™ format as well as data review and edit capabilities for all **Locomotion**™ data. The **Locomotion**™ for Windows™ utility also allows you to exchange and synchronize **Locomotion**™ data with a wide variety of popular PC database programs, including GoldMine™ from ELAN Software.™

Take this opportunity to give your brain a break...

Call PenUltimate™ at **714-442-6700** or FAX a request to 714-476-8411 or send us an email to locosale@deltanet.com to receive information about **Locomotion**™ on the Apple® MessagePad™ – a *truly mobile* business information management solution.

Powerful Link-Optimized Core Modules

Locomotion™

Link-Optimized Contact and Opportunity Management for Professionals in Motion!

SEE US IN MOTION ON THE WORLD WIDE WEB IN FEBRUARY!
(Our email address is locosale@deltanet.com)

Circle 32 on reader service card

*The developers of SalesForce™

PenUltimate™
SOFTWARE SOLUTIONS FOR MOBILE COMPUTING

Locomotion,™ PenUltimate,™ the PenUltimate™ logo, and SalesForce™ are the trademarks of PenUltimate,™ Inc. All other product names, company names, product logos and company logos are the trademarks of their respective companies. © PenUltimate,™ Inc. 1995 All Rights Reserved.

Communicating With Newton

If you thought you had to be plugged in and sitting down to send e-mail, receive a fax, check out a CompuServe forum, or surf the Web, it's time to think again.

BY NICK WINGFIELD

A computer without communications features is like a cat without its meow. Like it or not, we're knee-deep in modems, e-mail, Web surfing, and network computing, thanks in part to the radical growth of e-mail and the Internet.

With mobility as their raison d'être, the newest generation of personal digital assistants are really two-part computing devices: part personal information manager, part intelligent communicator. For these purposes, PDAs like Newton are far superior to laptops for on-the-go users (see sidebar, page 4). Instead of lugging a $2,000 laptop along on business trips just so you can check e-mail and your schedule, you can get a PDA with the same capabilities for a third of the price and an eighth of the weight. "E-mail and scheduling are exactly the kinds of applications I expect my Newton to replace," says Sandy Smallens, senior director of multimedia at Atlantic Records, based in New York. "Laptops are a pain in the ass to check in at airports."

To this end, Apple built its radically improved Newton 2.0 operating system from the ground up with mobile communications in mind, and its resident e-mail, fax, and desktop connectivity facilities show several marked improvements. Yet many of the most useful of Newton's communications-centered applications aren't coming from

ILLUSTRATIONS / JOYCE HESSELBERTH

REAL PEOPLE

Michael Dorf: Timing the Music

"In the music business, you gotta be cool," says Michael Dorf. As president of the Knitting Factory, Manhattan's avant-garde jazz club and record company, Dorf found that carrying a laptop backstage—where he does most of his concert and festival scheduling—was not only awkward, but decidedly uncool. "I'm on the business side of things, but I still have to look hip."

Dorf, who has used a PowerBook since day one, says that his recent conversion to an Apple Newton 2.0 MessagePad 120 from a laptop has not only upped his hipness factor, it's given him greater flexibility. "When I'm at a club, I don't want to be carrying around a PowerBook or, for that matter, a briefcase. Now, because of my PDA, I don't need either. I'm hands free."

Dorf relies primarily on the calendar program Now up to Date! (Now Software, 800/275-1669) which runs on his PDA as well as the networked Macs in the main office. "To have the Knitting Factory's complete calendar right at my fingertips is a big advantage," says Dorf. "Now, no time is wasted. If I've had a conversation with someone backstage—whether it's in Tokyo, Zurich, or uptown New York—I'm able to relay that information immediately back to the company and synchronize calendars."—**Leslie Crawford**

Cupertino, Apple's home town, at all. Independent software and hardware developers are driving much of the innovation behind Newton communications, from two-way wireless PC cards to LAN e-mail clients to World Wide Web browsers.

On the E-Mail Trail

With Newton 2.0, Apple succeeded in making all of the PDA's resident applications a kinder, gentler experience. (The new operating system even won the Fall Comdex '95 Best of Show award.) For example, handwriting recognition, which so limited the original Newton's usefulness, is radically improved. But nowhere is the benefit more obvious than when you compose e-mail.

Out of the box, Newton 2.0 does include some basic networking capabilities in the form of AppleTalk, Apple's LAN protocol software. Through the serial port, you can plug into a networked printer or synchronize your Newton data with Newton Connection Utilities (see sidebar, page 10) running on a server. But if you want to send or receive e-mail or faxes, you'll need a modem. For some mysterious reason, Apple refuses to put an internal modem in the MessagePad (Apple's Newton hardware, of which there are a few versions). This forces Newton users who want e-mail or fax capability to purchase a separate modem, which is about the size of a KitKat candy bar, or a more sleek PC card fax modem.

Once you've got the modem, however, Newton's resident fax and e-mail communications capabilities get you moving right along. For example, its built-in e-mail client for Apple's eWorld online information service allows you to exchange text messages with other eWorld members on Macs, Windows PCs, and Newtons. With eWorld's Internet gateway, subscribers can also send e-mail to Internet users, as well as to

Newton Versus the Laptop: Which Is Better?

Like other PDA devices, Newton is clearly a cousin to another kind of mobile computer: the laptop. The two devices support the same basic communications applications: fax, e-mail, and information access through software such as Web browsers or database clients. As with Newton, laptop users rely on synchronization software to keep their mobile applications in touch with desktop computer applications. With Apple's recent release of a midsized keyboard that plugs into Newton's serial port, it's even tempting to call Newton a pint-sized laptop of sorts. And if you're ready to put down around $90, you get an input device that never has handwriting-recognition problems.

But, when choosing a communications platform, it helps to align expectations with reality. Newton isn't designed to deliver the kind of horsepower, graphics capabilities, and overall flexibility that laptops can. Nor can PDA users plug into a network like the Internet as full and equal peers to desktop and computer users. While your cohorts with PowerBooks and ThinkPads are opening e-mail with attached Microsoft Word documents, you and your PDA-using sisters and brothers are limited to ASCII text e-mail.

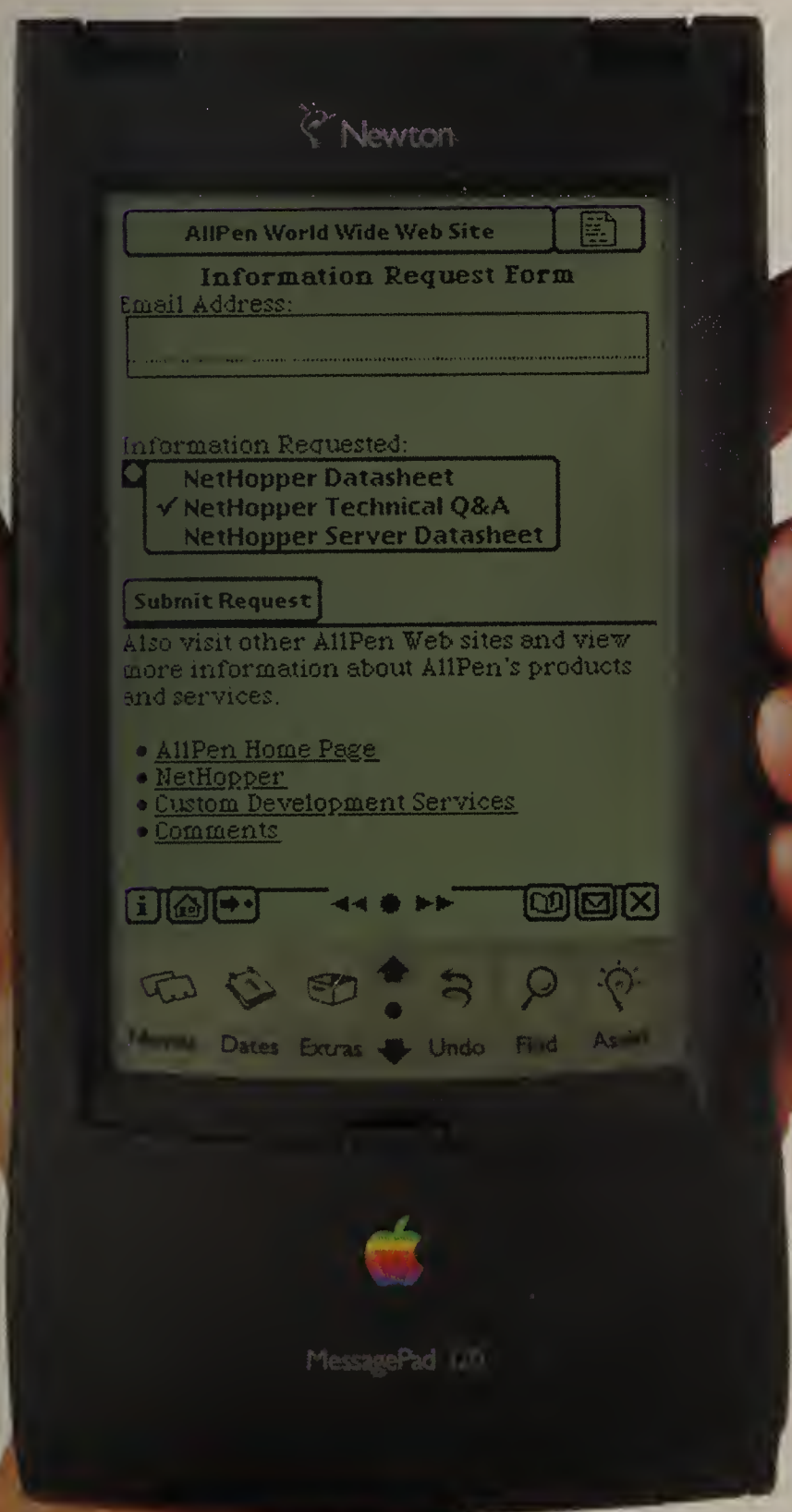
Also, contrary to what you were taught as a teenager, size does matter. Newton's smallness is its chief asset, but smallness also means sacrifices in screen quality. Some experts say Newton's tiny screen seriously limits its appeal as a platform for e-mail and other communications applications.

Still, if all you really need is a personal information manager that can let you talk to the outside world—and it with you—you may find Newton an intelligent investment. And it sure relieves the pressure on that sore lower back.—**N.W.**

PHOTO / PETER GREGOIRE

NetHopper

The World Wide Web Browser for the Newton



Now you can tap the vast resources of the internet from any location at any time. Use NetHopper™ to check stock quotes, find sports scores, or even order airline tickets! NetHopper puts the World in the Palm of Your Hand!™

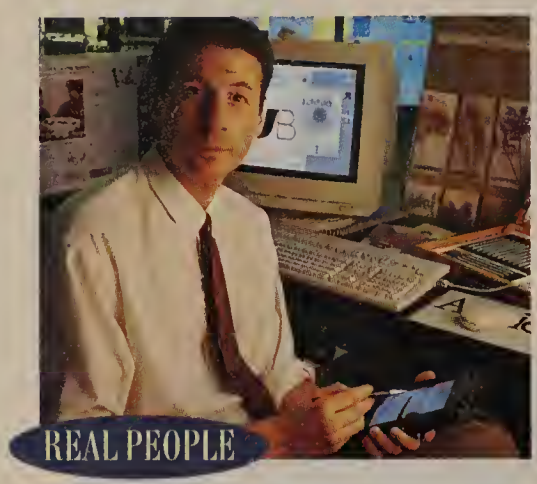
Newton®

AllPen Software, Inc.

51 University Ave., Suite J
Los Gatos, CA 95030
Phone: (408) 399-8800
Fax: (408) 399-4395
Email: NetHopper@allpen.com
WWW: http://www.allpen.com

Circle 21 on reader service card

AllPen is a registered trademark of AllPen Software, Inc. NetHopper and "The World in the Palm of Your Hand" are trademarks of AllPen Software, Inc. Newton and the lightbulb logo are registered trademarks of Apple Computer, Inc. All other trademarks referenced are property of their respective owners.
© 1996 AllPen Software, Inc. All Rights Reserved



Victor Zauderer: Breaking Out of Books

Victor Zauderer's life may be wrapped up in the paperbound world of book design and publishing, but he spends most of his working hours reading and writing with a Newton. A director for The Understanding Business, a publishing and book design firm located in San Francisco, California, Zauderer is virtually bound to his Newton 2.0 MessagePad, using it to send and receive faxes, send and receive e-mail, take notes, make call logs, track his time, and schedule appointments. "It's never out of my hands," he says. "I can write up an entire contact in less than a second."

The Understanding Business publishes graphical, easy-to-understand books such as the Access Travel Guides (recently sold to HarperCollins). In addition to using the Newton all day long to manage their business, Zauderer and his colleagues test-drive their publications through other people's PDAs. From an address on the World Wide Web (http://www.info.apple.com/newton), Newton users can download general information about a book's contents, a sample of writing, and information about and how to purchase it. The company also plans to ship its publications in both print and electronic MessagePad form via Newton online interest groups and Web sites and Understanding's own Web site.

Zauderer thinks the MessagePad is a logical way to market and publish sophisticated information. "People who buy Newtons are already a very specific group who are interested in complicated topics," he says. "It's a perfect communications vehicle."**—Marie D'Amico**

subscribers to commercial online services, such as America Online, CompuServe, and Prodigy. The resident e-mail software also allows you to exchange any Newton object—for example, a business card from Names, a calendar appointment from Dates, or a NotePad drawing—with other Newton users. (Unfortunately, Mac and Windows PCs can't receive Newton objects, just plain text.)

In addition, Newton 2.0 lets you send a fax or e-mail to multiple recipients through a batch transmission feature. (Beaming, which allows Newton to wirelessly exchange objects with other nearby Newtons, also supports batch transmissions, as well as the exchange of software packages.)

Newton 2.0's built-in communications capabilities aren't perfect: though Newton's In Box makes it easier to receive faxes, Newton's resident e-mail client still lacks some basic filtering capabilities, for example, that would allow you to reject incoming messages over a certain size before they're downloaded or to file messages automatically from a particular sender into a designated folder.

Third-party Newton developers provide applications that fit a range of communications needs.

Fortunately, independent software vendors (ISVs) aren't waiting around for Apple to take care of these issues. A host of third-party developers now provide add-on applications that fit a range of communications needs. (Indeed, the breadth of third-party products available really demonstrates how far Newton has come as a platform.) Here's a roundup of the chief offerings.

ONLINE SERVICE APPLICATIONS If you're not an eWorld fan, there's no reason you can't use your favorite online service. America Online aficionados can use Catamount Software's (802/863-5256) Aloha, a simple $50 program that allows you to send and receive e-mail from your AOL account via modem. Another firm, Black Labs (303/938-8580), has created a Newton client for the CompuServe Information Service (CIS) called CIS Retriever ($99), which allows users to access CIS discussion forums, news, and stock quotes, in addition to e-mail. The company offers a similar software program for First Class bulletin board systems, called FirstClass Retriever+ ($99). There's also a more generic, less graphical communications program from Ex Machina (212/843-0000), PocketCall ($119), which lets users access CIS e-mail and forums, as well as text-only BBSs and Internet UNIX-shell accounts provided by companies such as Netcom.

LAN E-MAIL Newton's success as a personal communicator for mobile professionals depends, at least partly, on how well it integrates with office information systems. For users of QuickMail, a LAN-based e-mail software package for Macintosh and Windows PCs, CE Software (515/221-1801) offers EnRoute, a $129 Newton client for remotely accessing e-mail on QuickMail systems via modem. EnRoute allows you to view your QuickMail in box online so, for instance, you can avoid downloading e-mail with bulky attachments. It also integrates nicely with Newton's resident NotePad and Names applications, with a cool feature for simplifying addressing of QuickMail messages. CE Software also offers a wireless e-mail client, called MobileVision ($875 for five users). Designed for use with Motorola's Marco wireless communicator, the software forwards mail from QuickMail, Microsoft Mail, and cc:Mail systems to Marco, employing user-defined criteria to filter messages.

Users on Microsoft Mail and Lotus cc:Mail LANs have a wired option to chose from as well: River Run Software

PHOTO / ALAN BLAUSTEIN

The New, Enhanced Apple MessagePad 120.

The new Apple® MessagePad® 120 is powered by the just-released Newton® 2.0 operating system, recent winner of "Best of COMDEX" in its category at COMDEX '95.

You're organized while you're mobilized.

Weighing only 1 lb., the MessagePad 120 has the functions of an electronic organizer, and more. It stores hundreds of names, phone and fax numbers, street and e-mail addresses. It keeps track of your schedule. You can write to-do lists, notes, memos, or even make sketches. Its handwriting recognition has been greatly improved.

It not only organizes, it communicates.

The MessagePad 120 works with the way you communicate today. It can send and receive faxes. It also allows you to receive wireless paging messages and news bulletins. You can exchange e-mail via the Internet. It even has an optional keyboard so you don't have to carry a laptop.

An easy connection to your PC.

The new MessagePad 120 connects to both Windows and Mac™ OS-based computers. So you'll be able to create backup files, take your PC files with you, or access your PC from the road. That's because, with new connection software, you can easily download and upload data from your personal computer to your MessagePad 120.

Check out the new Apple MessagePad 120. You'll soon discover how it can make you more efficient and productive when you're on the go.

The New Apple MessagePad 120

Info to go.

For the reseller nearest you, or
to receive information via fax, call

1 800 909-0260

Visit us on the Web at:
http://www.info.apple.com/newton

REAL PEOPLE

Dr Steve Labhoff: Walking the Wards

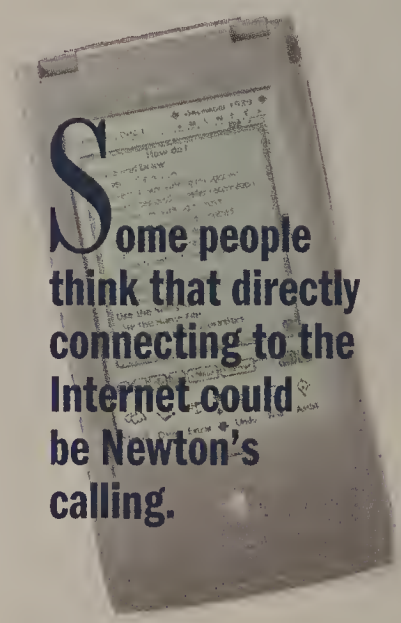
Two years ago, when Dr. Steve Labhoff took charge of implementing computer technology to make physicians' jobs easier, he went straight for the Newton. "The doctors I work with need drug dosage, medical records, and other information quickly," says Labhoff, a research associate of internal medicine at the Decisions Systems Group of Harvard Medical School's Brigham Women's Hospital. "But this information is stored usually somewhere else—in a library, say, or in the medical records department."

Believing that PDAs have great potential for accessing this data, Labhoff launched the Constellation Project, a study conducted at Brigham Women's Hospital and Massachusetts General Hospital. Labhoff approached K2 Consultants (603/551-5544), a New Hampshire–based software design company, to design a custom medical reference package.

The K2 software includes a drug information handbook from the Texas electronic publishers, Education Research Laboratories, and the Medical Knowledge Self-Assessment Program from the American College of Physicians. It also includes a manual the residents wrote for interns, a medical calculator designed by Labhoff, and a phone book of residents in five local hospitals."K2 created an indexing scheme that allowed the software to function quickly," explains Labhoff. That way, a doctor can look up a drug in ten seconds or less.**–L.C.**

Group's (203/861-0090) Mail on the Run! ($129). Instead of connecting directly to an e-mail server, Mail on the Run! provides remote access to LAN e-mail by connecting to a user's Windows 3.1 or Windows NT workstation back in the office. That means you need to have a modem attached to your office workstation and to have your computer turned on at all times. Businesses with multiple Mail on the Run! users will probably want to dedicate a Windows NT. Qualcomm's (800/238-3672, ext. 6087) Eudora Light for Newton (free with the desktop version of Eudora, which costs $89) connects via modem or serial connection to a Mac workstation (a Windows version is on the way) running the desktop version of Eudora. This enables users to transfer messages between PC and Newton. While useful, the product isn't really a full-fledged e-mail client, but rather an offline e-mail browser.

THE WEB E-mail may be the killer application of the Internet, but the Web is definitely the sexiest one. Enter AllPen Software (408/399-8800) with its NetHopper Web browser for the Newton ($50). The company has wisely chosen to create a text-only browser so that Newton doesn't get clogged by Web page graphics, though users will still have an interface and features similar to the Mosaic and Netscape Web browsers, including the ability to follow hyperlinks. The software comes in two configurations: a client-server package that enables up to 20 Newtons to surf the Web through a Macintosh Internet server and a more consumer-oriented version that connects directly to the Internet through what's called a SLIP/PPP account. This last version is contingent on Apple's February release of a Newton version of TCP/IP.



Some people think that directly connecting to the Internet could be Newton's calling.

Newton TCP/IP software will definitely benefit more applications than NetHopper and allow a greater degree of access to the Internet. In fact, some people think this could be Newton's calling. "An application that taps into the Web would sell more Newtons than anything else," says Steven Erde, director of the Office of Academic Computing at Cornell University Medical College in New York. "One of the things that's imperative is the ability to do a direct connect to the Internet, and Apple already has this fantastic appliance in the Newton."

Newton Unplugged

Given their druthers, most users would like access to e-mail or the capability of sending a fax whenever they please, wherever they are—in an elevator, in a car, walking down the street. For Newton users who prefer to have no strings attached, here are some options.

TWO-WAY COMMUNICATIONS For those who want two-way wireless communications from their Newton in a tightly integrated package, the obvious choice is Motorola's Marco (800/894-7353). In addition to all of the standard features of Apple's MessagePad products, including PC card slot and serial port, Motorola's Newton comes with a built-in radio modem for connecting to Ardis, a nationwide wireless data network. (Unfortunately, Motorola has no plans to see a Newton 2.0 version of Marco—the device currently runs on Newton 1.5—nor does it have any plans to offer a Newton 2.0 upgrade for existing Marco users.)

For users willing to stick with the older Newton operating system, Marco offers writers two e-mail options to choose from. The first, Radio Mail (free with Marco; 800/597-6245) gives users

PHOTO / SETH RESNICK

Now that TACO BELL'S® auditors use FormLogic,™ they can compile inspection results in the time it takes to make a bean burrito.

(Hold the onions).

When Taco Bell Corp. ("Taco Bell")– an industry leader in fast food preparation, and Audits International were looking for a way to streamline the restaurant chain's quality inspection process, they turned to Wright Strategies' FormLogic. The powerful form-generating, data-reporting software allowed Taco Bell to move from paper-based inspections to much speedier electronic inspections, using the Apple MessagePad.

Now using a preprogrammed form that's extremely easy to navigate, auditors can evaluate more than 150 items, like food temperature and holding time. Using the MessagePad's stylus, they simply select the appropriate responses on the form and the report is completed in minutes.

The result is reduced paperwork, decreased response time, lower inspection costs, and vastly improved consistency. And instead of waiting weeks for inspection results, now each restaurant receives a report at the conclusion of the audit. Information is uploaded from the MessagePad to the company's database in minutes making report generation a snap.

To find out how easily FormLogic's efficient form distribution and data retrieval solution can integrate with your existing system, contact Wright Strategies at 1.800.666.1228. Maybe we'll even spring for some take-out.

WRIGHT STRATEGIES

http://www.wrightstrat.com

©1995 Wright Strategies. FormLogic is a trademark of Wright Strategies. Taco Bell is a registered trademark of Taco Bell Corporation. Other brand names are trademarks or registered trademarks of their holders.

Circle 39 on reader service card

Jacquelyn Baas: Art History in Your Hand

In most art museums, human tour guides—some more interesting than others—explain the history and technique behind the paintings and sculptures to tour groups and school kids. But you can get a personalized guided tour on your hand-held Newton at the University Art Museum at the University of California, Berkeley, where museum director Jacquelyn Baas says that the technology "represents our commitment to making art accessible."

The University Art Museum's "pocket curator," developed by Visible Interactive (415/433-7781) of San Francisco, lives in a Newton 2.0 MessagePad 120 with specially added backlighting, a fingertip user interface, headphones, heaps of memory, and a handy pouch. Turn it on, and you get a personal, interactive audio guide of the museum as you walk through it. The pocket curator discusses the exhibits in which you're interested, when you want, for as long as you want.

The MessagePad's IR port detects your location, and the unit can display choices based on the specific room into which you've wandered. The device describes a museum space, a room, or a painting, while you are touring; it can also schedule a tour for available time and print out the tour later.

"Now the tour can follow you instead of you following the tour," says Richard Rinehart, information systems manager for the University Art Museum.—**Marie D'Amico**

an e-mail account connected to the Internet. Targeting mainly Marco workgroups, Ardis Personal Messaging (free with Marco), on the other hand, provides an e-mail address that is accessible only to other subscribers to Ardis Personal Messaging. Besides e-mail, both Radio Mail and Ardis Personal Messaging offer fax and selected information services, including stock and news updates, though there are extra charges for both. Motorola has also kick-started development of other Ardis-based services aimed at vertical markets (see the sidebar on desktop to Newton connectivity, below), and some mail packages, such as Mail on the Run!, also support Ardis connections.

Apple MessagePad owners also have two-way options to choose from. Motorola offers an add-on wireless modem for the Ardis network, called the Personal Messenger 100D ($750). This device is a type II PC card that slides snugly into the MessagePad's card slot. With it, users can access Radio Mail and vertical applications developed for Ardis. Just to complicate things, there's another nationwide wireless data network, RAM Mobile Data, that is virtually identical to Ardis. To tap into the RAM network, you'll need Megahertz's (800/527-8677) AllPoints Wireless PC Card ($499). Once you're riding the airwaves, you can choose from Radio Mail or Wynd Communications' (800/549-6000) WyndMail, which includes e-mail, fax, and a feature for converting e-mail messages into synthesized voice phone calls.

THE VERTICAL CLIMB Hardware vendors are also setting their sights on vertical markets with Newton-compatible devices for creating wireless local area and wide area networks. With Dayna Communications' (800/443-2962) Roamer PC card and serial devices, Newton users can wander wire-free within 150 feet of a LAN access

Desktop to Newton Connectivity

There are two "Cs" crucial to Newton as a platform: communications and connectivity. The latter enables Newton's resident applications to stay in touch with desktop PC applications such as personal information managers and databases. Without desktop connectivity, many Newton users' lives would effectively become schizophrenic, with data in parallel PC and PDA applications growing gradually more dissimilar.

Apple's answer to this problem is Newton Connection Utilities, a set of software programs for Macintosh and Windows PCs that provides file synchronization capabilities between Newton and popular Mac and Windows PIM applications, such as Claris Organizer, TouchBase Pro, and NetManage's Ecco. Newton Connection Utilities also provides data backup capabilities so you have a copy of Newton's data on your computer hard disk. With Newton 2.0, users can perform synchronization and backup one of three ways: serial cable, LocalTalk, or modem.

Ultimately, Newton Connection Utilities may be eclipsed entirely by direct synchronization features between desktop applications and Newton. Seeing NCU as an extra step to linking both platforms, Apple is encouraging developers with software tools to embed "Synchronize With Newton" capabilities in their desktop applications. Already some have started, including Team Coordination (514/481-4647) with its TeamAgenda Mac scheduling software ($549 for five users) and Now Software (800/275-1669) with Now Contact and Now Up-to-Date, two Mac PIM applications ($150 plus $30 for a synchronization module).—**N.W.**

PHOTO / ALAN BLAUSTEIN

Ready reference at the point of care.

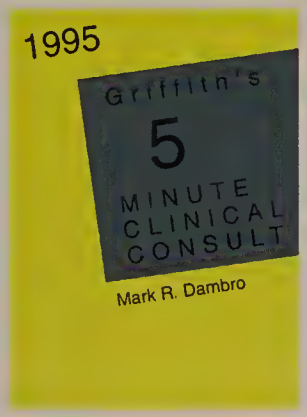
The ERLI Professional Medical Reference Series for Newton® PDA's.

Reference information is rarely available where it's most valuable—at the point of care. With the ERLI electronic medical references, a Newton PDA becomes a mobile medical library, keeping key reference sources readily available at home or hospital, examining room or OR. Our Professional Medical Reference Series includes many of the most frequently used texts—Drug Information Handbook, 5 Minute Clinical Consultant and DSM-IV—and most are updated annually.

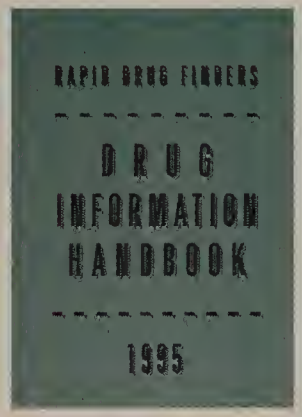
For information on how to put ERLI electronic medical references to work in your practice, call NewtonSource at 1-800-NEWTON-1 or visit the NewtonSource nearest you for a demonstration.

EDUCATION RESEARCH LABORATORIES INC.

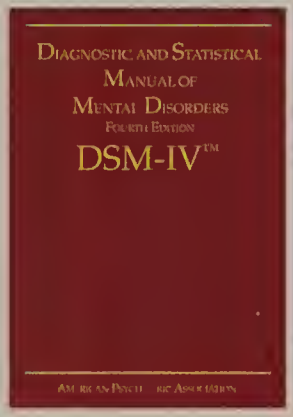
Putting electronic medical information into practice.



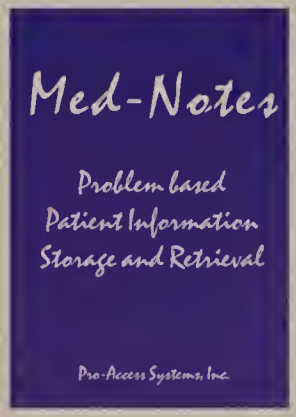
5 Minute Clinical Consult
$59.95 at NewtonSource



Drug Information Handbook
$99.95 at NewtonSource



The Diagnostic and Statistic Manual, Fourth Edition (DSM-IV)
$45.95 at NewtonSource



MedNotes
Patient Information System
Includes lists of findings for 40 common and important chief complaints
Regularly $149.95
NewtonSource Special
$119.95

Experience ERLI at NewtonSource.

When it comes to specialized applications, NewtonSource is the business solutions source. In healthcare, ERLI is the clear leader in Newton medical information applications—and with our intimate knowledge of Newton technology, we can work with you one-on-one to combine ERLI reference sources and patient information systems with off-the-shelf software, accessories and services to make your MessagePad an invaluable tool at the point of care.

To see ERLI at work, come to NewtonSource in New York, San Francisco, Los Angeles and Chicago for a personal demonstration. Or call us for information.

Apple, the light bulb logo, MessagePad and Newton are registered trademarks of Apple Computer, Inc.

Circle 27 on reader service card

Friends in Need: Where to Get Support

With Best of Comdex kudos and glowing press reviews to back them up, Apple's MessagePad 120 loaded with the Newton 2.0 operating system "has been selling itself," according to George Giakouminakis, a sales representative for J and R Computerworld, a large retail outlet in New York City. "A lot of people come in and say, 'Give it to me,' without asking any questions. With the older one you had to do a lot more explanation."

While the new Newton is unquestionably easier to use, the hardware and software can take some getting used to. In most cases, purchasers can receive rudimentary support and training from the dealer to get over the learning hump. But chances are that if you purchase a Newton from a store that also sells stereos and vacuum cleaners, you might not be getting the technical expertise that you need to answer tough questions.

Apple already provides a one-year warranty on the hardware along with telephone support (800/767-2775) for the $699 product. Though getting through on Apple's 800 line may make you wish you had taken up a time-passing hobby like knitting, the support comes straight from the horse's mouth.

Another excellent alternative is to purchase a Newton from one of the four Newton Source stores (in San Francisco, Los Angeles, New York, and Chicago; call 800/639-8661 for information). These stores specialize in Newton and nothing but Newton, and their staffs know everything about both hardware and application software. Newton Source will preload the software you want and provide training; you can also sign up for lifetime on-site and telephone support. If something goes wrong, you can send your PDA in and receive a replacement within 48 hours while your unit is under repair.—**Bronwyn Fryer**

point indoors, 700 feet outdoors. The device uses the unlicensed radio spectrum, so businesses don't have to pay a monthly service fee. Digital Ocean (913/888-3380) has taken the integration between Newton and wireless communications a step further, introducing in January of this year a product called Seahorse. This is a ruggedized device based on the Newton 2.0 operating system with the option of wireless LAN, cellular digital packet data, global positioning satellite, or other wireless modules. A similar program, KPMG Peat-Marwick's (610/995-4400) SaleMate, enables wireless access to SAP R/3 Systems, a corporate sales automation system.

CELLULAR For a more versatile two-way wireless option, you may want to consider a cellular phone instead of a specialized data modem and service. With a cellular phone, Newton users can dial into the same services accessible via ordinary telephones, including online services, with the added bonus of being able to make voice calls. Connecting to AOL via cellular isn't as dependable as a regular phone connection, though; prepare yourself for fluctuations in transmission speed. You will need a cellular phone, a PC card cellular modem, and a cable for connecting the two devices. There are a number of PC card cellular modems for Newton, including Toshiba's (800/959-4100) NoteWorthy card and Motorola's (800/472-6242) Cellect card, which cost around $230. The cellular modem may come with a connector cable, but be sure it fits your cellular phone before you buy it.

PAGERS Finally, if you don't have to respond to that e-mail anytime, anywhere, a great alternative to two-way communications is paging. Newton works with several receive-only PC card pagers, including Socket Communication's (800/552-3300) PageCard, priced at around $399. The PageCard will store messages received when outside of Newton, but it also has some added smarts for assembling longer messages that have been split into multiple pages. It even has its own tiny LCD screen for reading messages, though viewing pages on Newton's screen is infinitely easier. Apple's Newton Systems Group is working on a Motorola NewsCard paging solution for 2.0, which should be available before summer.

Needless to say, you'll want to familiarize yourself with service charges before forking over for a wireless solution. Although pricing varies, you can expect to pay anywhere from $40 to $60 a month for average usage on the Ardis and RAM networks. Users on both networks are charged by the data packet sent and received. If you're not careful, those packets can add up to a big Alka Seltzer Moment at the end of the month when you get your bill. Cellular phone users are charged by the duration of their calls, so data calls cost the same as voice calls; as an example, expect a two-page fax to take a couple of minutes to send over cellular.

With Newton 2.0 riding in tandem with some encouraging third-party development, the platform is picking up its pace as an intelligent communicator. Who knows? Within a few years, we may see commuters checking e-mail on their PDAs instead of talking into cell phones. Let's hope their cars are equipped with automatic guidance systems. ■

Nick Wingfield (nick_wingfield@infoworld.com) is an editor at Infoworld *who covers wireless communications.*

Keep a checklist of things to do.

Use Notes to take notes in ink text.

Look up the phone number of an airline in your Names file.

Keep a record of the phone calls you need to return.

Create a checklist of things to take on your trip.

Newton

Work smart.

See what's new with Newton 2.0:
Catch us at http://www.info.apple.com/newton

Send e-mail to colleagues—even over the Internet.

Synchronize your PDA and PC calendars.

Import the names file from your Macintosh into your Newton PDA.

Get paged. Then reply to that urgent message—wirelessly.

Back up all your Newton data on your Windows PC.

Jot down comments on a fax your boss sent you.

Use Newton Press to create a book about your next destination.

Use Intuit Inc.'s Pocket Quicken to track your expenses from your business trip to Maine.

Check your e-mail using a Newton PDA and a mobile phone.

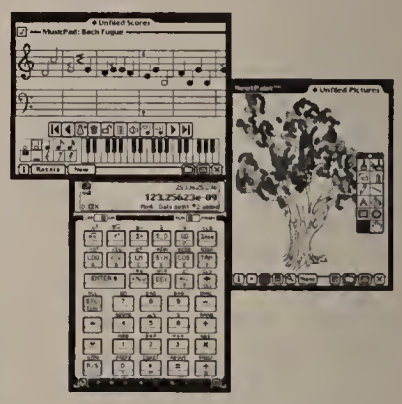
Circle 23 on reader service card

© 1996 Apple Computer, Inc. All rights reserved. Apple, the Apple logo, the light bulb logo, and Newton are trademarks of Apple Computer, Inc. registered in the U.S.A. and other countries.

a Ph.D. for Your Newton

- **proCALC Ex™**
  Count on this program to give you all your calculations.
- **FreeStyle™ ***
  Learns the way you write so you will write no wrong.
- **Quicknames Pro™**
  The last word in phone books– greatest functionality, easiest to use.
- **Sync+**
  A timely solution to synchronize your Newton with Microsoft® Schedule+.
- **MusicPad**
  A notable solution for portable composition.
- **NewtPaint**
  Now your Newton can truly paint with a pen– and erase, too.
- **KwikMenu**
  An integrated "short cuts" package to help you get around, fast.

Newton Works with Newton 2.0



LandWare℠
Software for Terra Firma

Questions? Answers: http://www.landware.com
Ken Landau (t) 201. 347. 0031 (f) 201. 347. 0340
info@landware.com **Orders:** 1. 800. 526. 3977

*Developed by: PARAGRAPH the leader in handwriting recognition.

Also available from:
NewtonSource
Personal Power Outlet
800.Newton.1

Circle 30 on reader service card

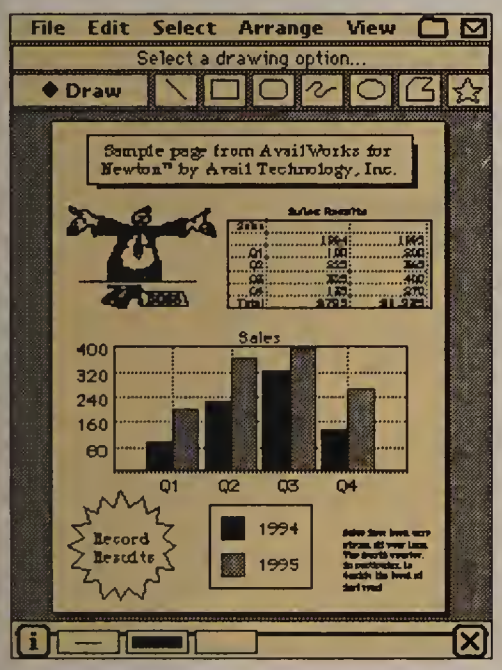
Mobileware Takes Off

Whether you're on the ski slopes or on the treadmill, here's a selection of Newton 2.0–based software that will let you take your business—and pleasure—with you.

BY BRONWYN FRYER

For the mobility-minded computer user, there are lots of applications out there for Newton 2.0 that can help make working on the go a bit easier—and even a little more fun. Here are just a few.

A SUITE DEAL On the desktop, all-in-one packages like Microsoft Works are an answer to word processing, spreadsheets, and graphics. But when you're in an airport working on a PDA, it's generally pretty tough to cut and paste together a reasonably nice-looking document. Enter AvailWorks, a $79 software package that lets you create a WYSIWYG document complete with text, graphs, and spreadsheet elements, then shoot it off to a recipient through an included fax modem utility.



Cut and paste text, graphics, and spreadsheet elements together using AvailWorks.

AvailWorks: Avail Technology, 408/730-6855

ILLUSTRATIONS / ROBERT ZIMMERMAN

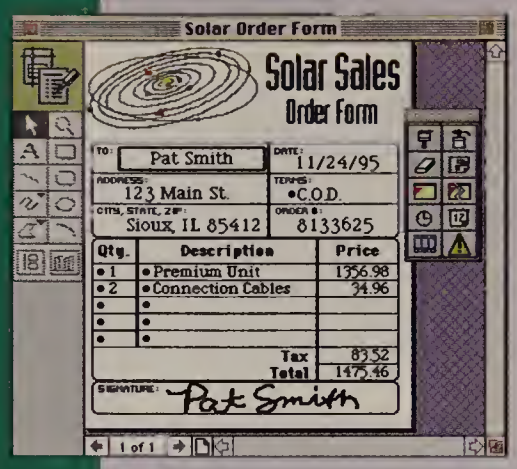
2.0 Compatible

PowerForms™

FORMS AND DATA FROM YOUR COMPUTER TO YOUR NEWTON

FROM YOUR NEWTON TO YOUR COMPUTER

Eliminate paperwork and expedite data collection. PowerForms gives you the ability to create custom data-entry forms on either a desktop computer or directly on a Newton Personal Digital Assistant (PDA). Forms and information collected in the field may then be exchanged between the PDA and your desktop.



Fields Supported
- Text
- Check Boxes
- Radio Buttons
- Pop Lists
- Time & Date
- Formulas
- Table
- Currency
- Graphics
  - Pictures
  - Polygons/Ovals
  - Rectangles
  - Digital Ink/Lines

Macintosh and Windows compatible. Recommended 1MB or greater PCMCIA storage card.

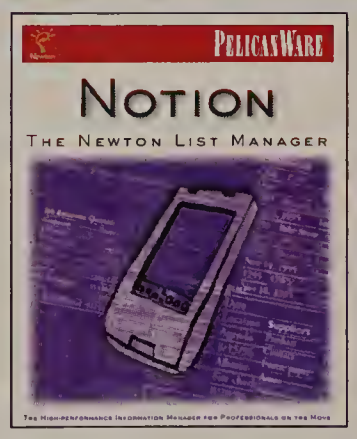
Macintosh and Newton are trademarks of Apple Computer, Inc. PowerForms is a trademark of HealthCare Communications, Inc. Windows is a registered trademark of Microsoft Corporation.

210 Gateway
Suite 200
Lincoln, NE 68505
800-888-4344

HealthCare COMMUNICATIONS

Circle 29 on reader service card

Portable Productivity



Notion
The High-Performance List Manager
- New Newton 2.0 Version
- Organize, Integrate and Communicate Vital Info
- Includes Notion List Designer

Quick Figure Pro
The Spreadsheet Solution
- New Newton 2.0 Version
- Landscape Mode
- Import/Export to Mac & Windows, including Excel

NewtCase
'Best-of-Breed Archiving'*
- New Newton 2.0 Version
- Manage your packages and maximize system resources

*Dave MacNeill, *Pen Computing* Nov/Dec 1995 review of v2.2

PelicanWare

Contact your Newton software dealer or call 1-800-655-NEWT.
PelicanWare, Inc. Vox (503) 221-1148 Fax (503) 221-8709
email:DonV@teleport.com. All major credit cards accepted.

Circle 28 on reader service card

ACT UP Symantec's best-selling contact manager turns your Newton into a great traveling companion. Besides managing contact names, addresses, and to-dos, you can use the $100 package to sync up with your desktop ACT! package to establish round-the-clock contact.

ACT! for Newton: Symantec, 800/441-7234

A DATABASE IN A BOX Databases aren't just the bailiwick of the wired-in world. Leverage is a simple, multifile database program upgraded for the Newton 2.0 platform. You can create your own customized databases, link up with large database applications on the desktop, or link databases together. While the $139 package supports only nine field types, it's great for simple selection, sorting and reporting.

Leverage: Balcones Software, 512/353-7259

Fasten your seatbelt,

Newton is flying **Informed**®

Informed Filler™ for Newton means that your data always gets off the ground. The information you collect is sent straight to your Windows® or Macintosh® form. You can change it, sign it, print it, mail it, or...

Using Informed, your Newton data seamlessly fills in electronic forms, right on your desktop computer. From expense, order or survey forms to those specialty forms unique to your business — whether it's insurance, health care...or flying lessons!

Call us at 1-800-386-7244, and get Informed working for you. Or visit our Web Site at http://www.shana.com to learn more about Informed. Or you contact us directly by email (info@shana.com) or by fax at (403) 437 4381

Shana

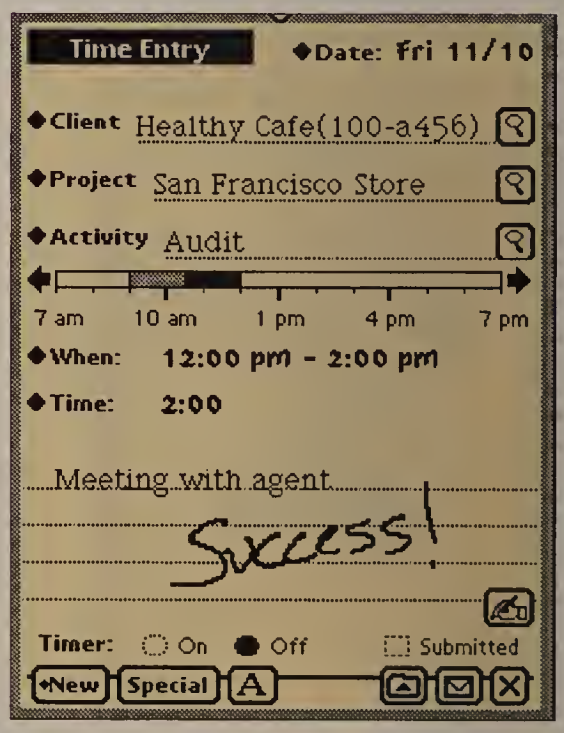
Taking forms from the desk to the desktop... and beyond.

Circle 37 on reader service card

MILEAGE TRACKER If you use your car for business, you probably hate scribbling mileage and other travel-related costs onto scraps of paper. MPG, a $30 package from Catamount software makes the task a one-stop shop that you can keep on your dashboard, on the seat, or in your glove box. You can use the software to track vehicle costs, fuel, maintenance schedules, and business trip mileage for one or many vehicles.

MPG: Catamount Software, 802/863-5256

DETAILS, DETAILS Filling out reports to bill clients for your time and expenses is unquestionably un-fun. With TimeReporter 3.0, Iambic Software's $100



Keep track of your expenses and time yourself to the minute with TimeReporter 3.0.

integrated time and expense tracking, reporting, and billing application, you can keep track of your time and business expenses on the go. With links to Newton's Names, To-do, Calendar, and call entries, the package even includes a stopwatch so you can bill down to the minute.

TimeReporter 3.0: Iambic Software, 800/730-5370

Just for Fun

Ready for a break? Try these seriously fun applications for your portable pal: Gold Tee at Bighorn (around $35), a golf game that you can play with up to four people (Apple Computer, 800/708-7827); MusicPad, a $40 music-composition app that plays back your songs from the PDA speaker (Landware, 800/526-3977); and Pocket Chef, a $100 mobile meal-planning tool that lets you create a grocery-shopping list by aisle (Forest Software, 970/923-3572).

Easter Egg Hunt

Tap your way to the mysterious and funny surprises hidden in Newton 2.0.

BY MARIE D'AMICO

Editor's note: *All work and no play makes anyone dull. Apple's Newton team had fun working on the new operating system, even plugging in a few hidden surprises. Freelance writer Marie D'Amico prevailed on her husband, Apple Fellow and Chief Programmer Steve Capps, to show her where all the so-called Easter Eggs lie in Newton 2.0. An Easter Egg is a hidden sound or picture placed in code by a programmer with a wacky sense of humor. Here's D'Amico's list for some of the tastiest Eggs in Newton 2.0. Enjoy.*

EGG FRECKLES Around the time that comic-strip artist Garry Trudeau made fun of the original Newton in Doonesbury, reporters often asked me, "how does your husband feel about his invention being ridiculed in Doonesbury?" To show what good sports we were, I wrote to Trudeau asking for an autographed

ILLUSTRATIONS / ROBERT ZIMMERMAN; CARTOON PANEL / © GARRY TRUDEAU

"Pocket Doc provides a comprehensive solution for physicians who would like to experience the advantage of an electronic medical record."

- Dr. Mark Ebell, The Journal of Family Practice

EASY

- No computer experience required
- Intuitive interface designed by a physician
- Designed for Outpatients, Inpatients and Multi-site use
- Portable and light, fits in a sports coat pocket

SAVES TIME

- Enter the History and Physical details during the encounter with a "tap" of the pen
- Code using the "Smart Browser," all it takes is 4 pen "taps" to reach the most specific billing code
- Transfer clinical notes to a desktop PC or Macintosh
- Fax or print notes/scripts directly from the Newton

SAVE MONEY

- Reduce/Eliminate dictation
- Speed encounter flow
- Reduce improper and non specific billing

IMPROVED PATIENT CARE

- Improve continuity of care with on-the-spot past medical data
- Care plans and health maintenance guidelines are listed and included in the note by simply tapping

PHYSIX INC

1-800-749-2585
pocketdoc@physix.com
1720 Dryden, Suite 205
4611 Montrose, Suite 230
Houston, TX 77030
FREE DEMO ON WWW PAGE

Circle 34 on reader service card

Build Your Own Newton Application In 10 Minutes

AppGen

Runs FAST on all Newtons
1 n & 2.0

Think of any data collection application you need, such as time & expense tracking. Use AppGen to build it with ease, just like filling out a multiple choice form. Exchange data with your favorite database or PIM application, or do it all on the Newton.

Sold At:
MacMall
The Newton Store (Toronto)
PDA Direct

$49.95

Phone: 508-548-4470 800 858-7956 Fax: 508-548-8731
email: pinet@aol.com

Circle 35 on reader service card

print of the complete strip for Capps's birthday. Trudeau sent me not only the signed strip but also an explanation of its creation. "I know a lot of people took my Newton strips to be a full-blown consumer review pan, but I was just writing about guys and their toys." He added, "The only thing I don't own is a Newton. I've never even laid eyes on one." To show what a good sport *he* was, Trudeau even drew a special Easter Egg for new 2.0. You can find Trudeau's Egg in 2.0 by writing "egg freckles" and tapping the "Assist" button.

GEOGRAPHY LESSON Feel like going on a wild world tour? Fun cities on the Newton 2.0 world map (tap Extras, tap Time Zones) include "Titanic," "Newtonmore," and "Newton, Iowa," the home of Maytag.

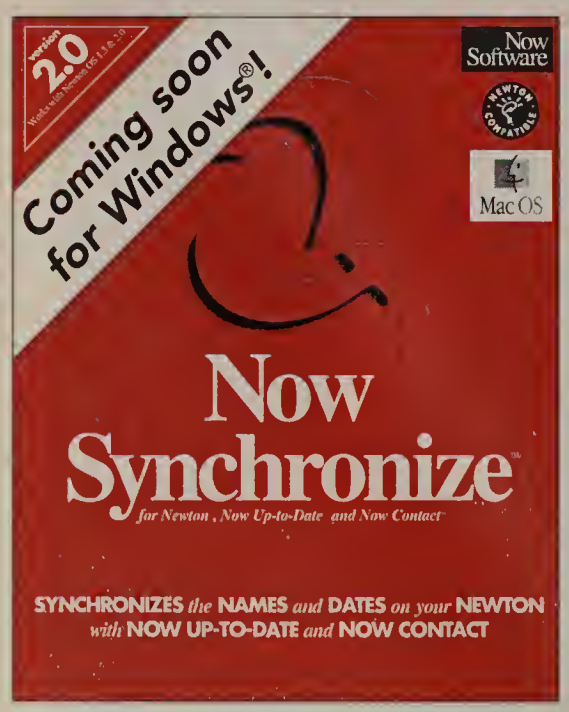
THE X-FILES If you believe in UFOs, the Bermuda Triangle, and the X-Files, you'll love this one. Area 51, AKA Groom Lake, is a top-secret military installation that lies about 90 miles north of Las Vegas, Nevada. Area 51 is where the government tests spy planes like the U-2 and the Stealth bomber (legend has it that Area 51 is also home to captured aliens from distant planets). Newton programmers placed their own Top Secret Area 51 Easter Egg in 2.0, to the displeasure of the CIA. And though Apple disavows any knowledge, you can find the Area 51 Easter Egg in Newton 2.0 by following these steps: Tap Extras, tap Unfiled Icons folder tab, choose Storage, tap Time Zones, tap Delete, tap OK, tap Storage folder tab, choose Unfiled Icons, tap Time Zones, tap on map near Nevada, and Area 51, NV will appear in the list of cities. ET and UFO icons appear in the Calendar. (For more mysteries, check out the following Web site: http://ww.cris.com/~psyspy/ area 51/desert_rat.)

CUCKOO NAMES If you want to go cuckoo, tap Dates, tap i, tap Prefs, tap in any corner without the X.

KNOCK THREE TIMES Write any of the following three times and you'll get a surprise: larryy, Brandyn, lesv, stafford, lyon.

SHADE YOUR EYES Power up Newton 2.0 on the day of a solar or lunar eclipse. Instead of the Newton light bulb icon, you'll see an eclipse you can view without sunglasses. ■

Want to share your calendar and contacts with your Newton®? Now Synchronize™ *makes it happen!*



Now Synchronize provides true two-way synchronization between Now Up-to-Date & Contact and a Newton device, making it the best portable solution for Macintosh® and Newton users!

Works with the new 2.0 Newton OS, as well as version 1.3.

Call 1-800-237-2078 and get synchronized today for only $29.95!

Now Software
It's about time.™

Circle 31 on reader service card

Consumer Advocate

by Howard Baldwin

Divining the Difference between Performas and Power Macs

SUBTLE CHOICES MEAN CAREFUL DECISION-MAKING

IF YOU'RE CONFUSED ABOUT the difference between a Performa and a Power Macintosh—and the letters we receive indicate that you are—simply think of them as the descendants of the Apple II and the Lisa, respectively. Apple Computer has always believed that its home machines (Performas) don't go into offices, and its office machines (Power Macintoshes) don't go into homes. In fact, according to Apple, 97 percent of Performas go straight home from the store.

But which one should you buy? They both run System 7.5 operating system software. Both come with RISC processors, and soon both will offer PCI slots. Except for the Performa 5000 series, which is an integrated one-piece box, you can upgrade the monitors of both. You can also upgrade the motherboards of both to take advantage of processor improvement.

Wait, now we're confused too. Let's go through the pros and cons of each and get this straightened out.

Performa Pros and Cons

The man who's in charge of Apple's entry Macintosh product line, Bruce Gee, calls the Performa the "Club Med of computers." Just like the vacation destinations where food and fun are included, on a Performa the software applications you need to get started are already installed. You'll find Claris's ClarisWorks integrated-office package, Apple's At Ease security software, Intuit's Quicken check-writing software, Datawatch's Virex antivirus software, and ten other applications, along with nine CDs. The modem's built in, so you can plug in the phone jack and start your online surfing. It's the cheapest desktop RISC processor you'll find.

Sound great? Sure it does. You've saved the cost of the monitor (about $500) and the software (about $1500). There are just a couple of problems. If you ever want a bigger monitor, you can go ahead and buy one—but unless you donate your old one to a local charity or school, that monitor is probably going to gather dust because you won't find much use or market for it. The software you get? Well, the $1500 figure refers to the suggested retail price of the software, but as we all know, nobody buys anything at the SRP. What's more, you may not even get the latest versions. The fact is, the computer you buy today may have been manufactured before an included software application was upgraded—you'll have to shell out more money if you want the latest version.

And once you've upgraded to the new version, since newer software is generally bigger, not smaller, you may soon find the computer choking on the 8MB or 16MB of RAM that ships with the Performa. System 7.5 takes 5MB of RAM. ClarisWorks may take only 3MB of RAM to run, but if you upgrade to Microsoft Word 6.0 (6MB of RAM) and Microsoft Excel 5.0 (10MB), you'll have to upgrade your RAM as well to run two similarly memory-heavy programs. You can expand the Performas to 64MB of RAM, but to do so requires two 32MB SIMMs, and the Performas have only two SIMM slots. That means jettisoning the 8MB or 16MB SIMM (although some stores will buy them back). Gee's recommendation either when you buy your Performa or when you upgrade: buy one 32MB SIMM and go with 40MB of RAM total. Unfortunately, this costs about $1600 (almost as much as the Performa itself), excluding installation, which is another $50 to $75.

On other upgradability fronts, there's mixed news. Performa hard drives range from 500MB to 1GB in the standard IDE format common in PCs, so you can increase disk capacity easily. But over the next year, IDE will be superseded by a standard called Enhanced IDE. It's unclear what you will need to upgrade today's Performas to accommodate an internal E-IDE drive (PCs need an upgraded BIOS), but you can always add external SCSI storage. You can buy your Performa with either a 14.4-Kbps or 28.8-Kbps internal modem, and for Web browsing you really need the latter. It isn't yet possible to swap the modem for a faster version—you'll have to use an external modem. You can add video and communications cards, but these are Performa-specific and cost between $100 and $200.

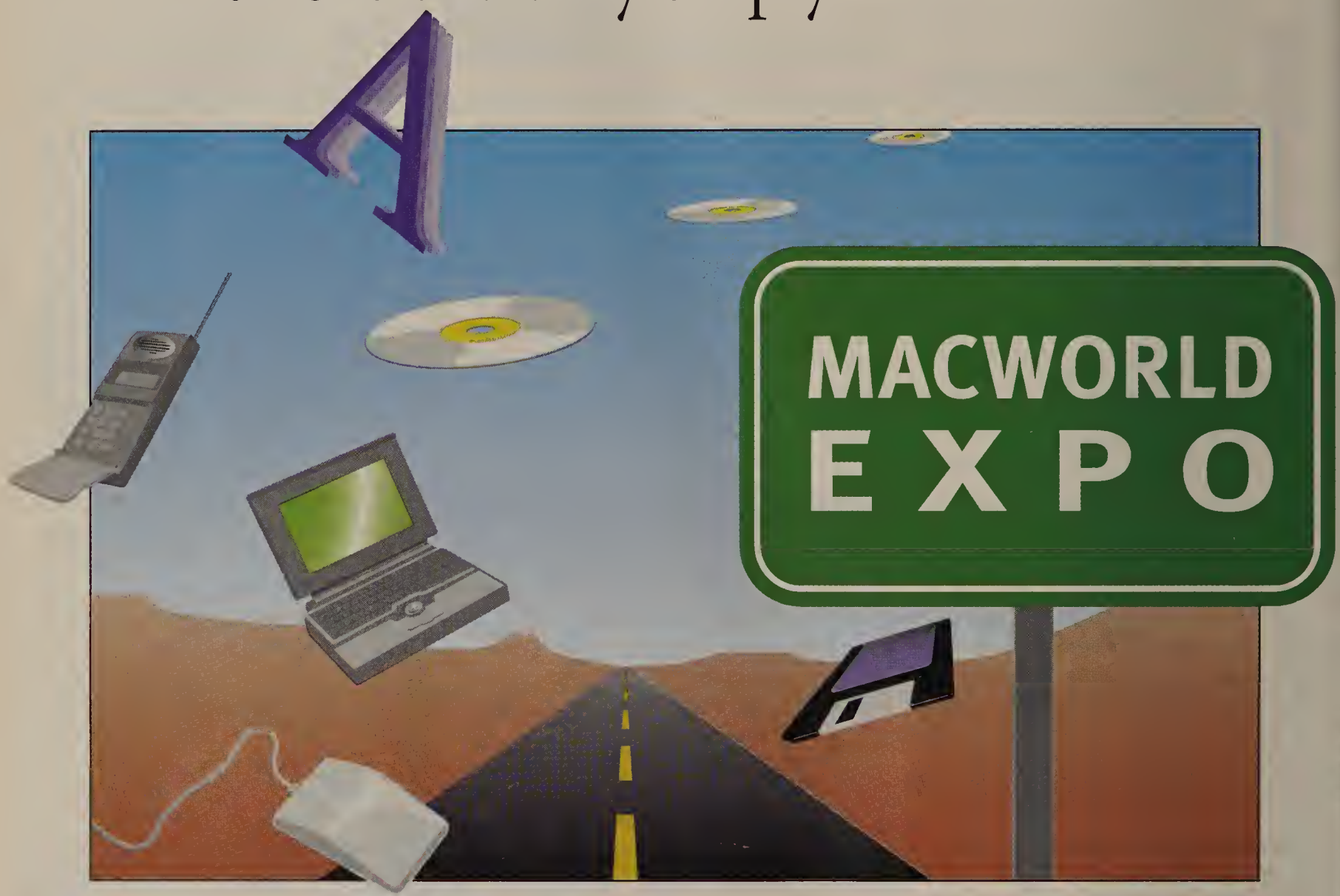
Power Mac Positives and Negatives

This brings us to the Power Macs. The first thing you'll notice is the price tag—Apple's suggested price for Performas starts at around $1400, while Power Macs start at around $1500 for a 7200/75 (the two lines overlap in the $1549 to $2800 price range). Extending Apple's travel analogy, the Power Mac is for people who like to plan their own itinerary—like

continues

Forget Gas, Food & Lodging

On the Information Superhighway this is the only stop you'll need.



Don't want to be bypassed on the Information Superhighway? Then plan a detour to MACWORLD Expo. Here you'll test drive the products and services that enable you to maximize the potential of the Macintosh now and down the road.

MACWORLD Expo is your chance to see hundreds of companies presenting the latest in turbo-charged Macintosh technology. Make side by side comparisons of thousands of Macintosh products. Learn from the experts how to fine-tune your system and what products will keep your engine running smooth. Attend a variety of information-packed conference programs that provide the skills and knowledge to put you in the driver's seat. So pull on in and take that new Mac for a spin.

Add a stop at any of our upcoming MACWORLD Expo events to your information roadmap. With shows in San Francisco and Boston, we're just around the next bend.

Please send me more information on MACWORLD Expo.
I am interested in: ❑ Exhibiting ❑ Attending
❑ **San Francisco** ❑ **Boston**

Name _____

Title _____

Company _____

Address _____

City/State/Zip _____

Phone _____ Fax _____

Mail to: MHA Event Management, 1400 Providence Highway, Norwood, MA 02062 Or Fax to: 617-440-0300 MW

backpackers headed to Nepal with a stopover in Vietnam. Power Macintoshes come in 17 versions, and you can mix and match hard drives, monitors, and RAM to configure whatever you want. With the 9500 towers, you can even add new internal disk drives, rather than adding to the chain of SCSI storage devices. Want to network? Ethernet ports are built into Power Macs—not so with the Performas.

But without software built in, you're looking at an additional cost for applications (unless you go to a retailer who will throw in some application disks). At $425 for Microsoft Office, $90 for Claris FileMaker Pro, a couple of utilities at $80 each, and $40 each for some CDs, you've paid half again as much as the Power Mac for software. And Power Mac buyers aren't immune to RAM choking either. Power Macs may come with 16MB, but you'll need to add at least 8MB, and maybe even 16MB, for a basic office computer. Anybody using Adobe Photoshop needs at least 40MB. There's another $1200.

THE AMCOEX INDEX OF USED MACINTOSH PRICES

Machine (RAM/Hard Drive)	Average Sale Price	Monthly Change
PowerBook 140 (4MB/40MB)	$625	+$25
PowerBook 165 (4MB/80MB)	$900	$0
PowerBook 180 (4MB/80MB)	$1250	$0
PowerBook Duo 230 (4MB/80MB)	$750	–$50
Mac IIsi (5MB/40MB)	$225	$0
Mac IIci (4MB/80MB)	$400	+$50
Mac IIfx (4MB/80MB)	$375	$25
Centris 650 (8MB/230MB)	$875	–$75
Quadra 800 (8MB/230MB)	$1125	$0
Quadra 900 (8MB/160MB)	$975	–$125
Power Mac 7100/66 (8MB/350MB)	$1475	+$25
Power Mac 8100AV (8MB/500MB)	$2175	–$75

Index provided by the American Computer Exchange of Atlanta (800/786-0717). It reflects sales during the week of January 5, 1996. Configurations include keyboard and exclude monitor and display board for noncompact models.

The Last Word

The answer to the Performa versus Power Mac question isn't clear-cut. To the question, "What should I buy?" we in technology usually respond, "What are you going to use it for?" But there's another important angle—what are you going to use it for in three years? In most technology purchases, whether corporate or personal, there's a tendency to ponder the neat stuff you can do that you hadn't thought of before.

As a result, no matter what computer you buy, in three years it may not have the processor power, the CD-ROM speed, or the hard drive capacity to run the latest and greatest applications. And even if you can upgrade it, the cost may set you back as much as a new computer would—whether Performa or Power Mac.

So are you willing to bite the bullet and buy a new computer in three years (or sooner)? Is there someone in the family or the company to whom you can pass the old one? If so, great. But if you're one of those rare and lucky souls who are confident that their computing needs will remain constant long past the turn of the century, then open up the all-in-one Performa box. Until technology stabilizes, the rest of us should stick with the power and flexibility that the Power Mac promises.

Performa versus Power Mac

	Performa	Power Mac
Starting price	$1400	$1549
RISC processors	yes	yes
Bundled software	System 7.5, ClarisWorks, 13 other applications	System 7.5
Add-in cards	currently Performa-specific	PCI
Ethernet	optional	built-In

Whatever Happened to . . . ?

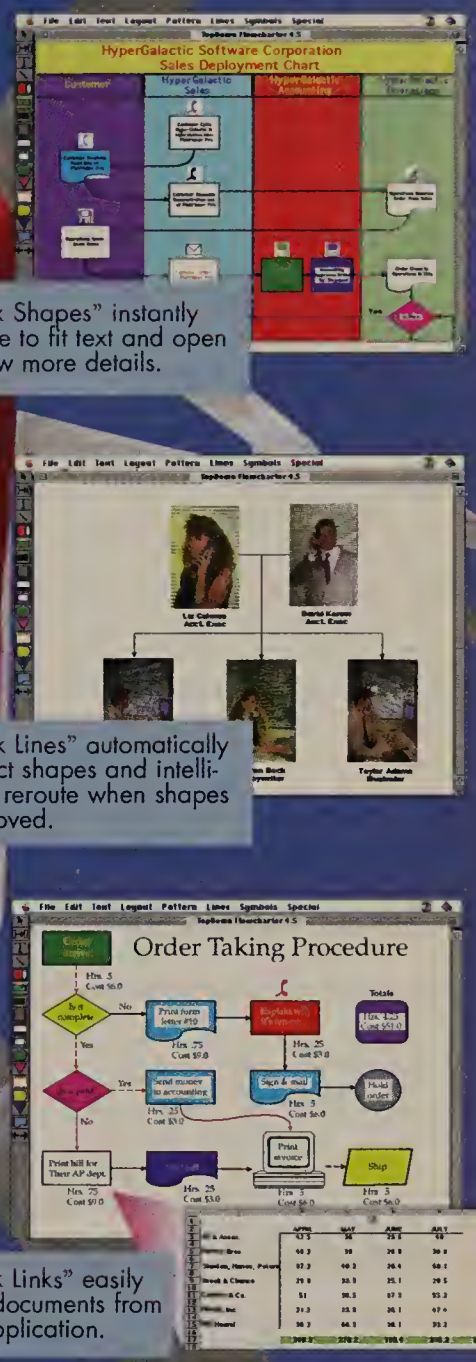
Missing in Action In November 1995, I had trouble with my Spirit Technologies hard drive. After getting a return-merchandise authorization number from the company's tech-support department, I sent the drive to Spirit via Federal Express. Yesterday, my hard drive was returned unopened with a form letter that states, "Spirit Technologies will no longer be in a position to assist you in repair of hardware products."

Since then, I've E-mailed, faxed, and left bunches of voice messages, but I've gotten no response of any kind. Do you know if the company is going out of business?

DAVID M. PECK, SR.
Rosemount, Minnesota

continues

NEW VERSION
The ALL IN 1 Charting Tool

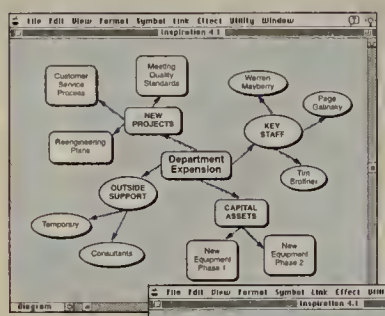


"Quick Shapes" instantly enlarge to fit text and open to show more details.
"Quick Lines" automatically connect shapes and intelligently reroute when shapes are moved.
"Quick Links" easily open documents from any application.

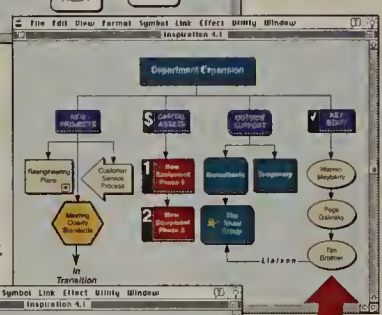
TopDown® 4.5
"The Smarter Charter"™
4½ MW ★★★★
"TopDown will take you places other flowcharters can't go."
-Infoworld
WINDOWS VERSION AVAILABLE
CALL (800) 938-8900
FOR YOUR FREE INFO KIT
KAETRON Software Corp.
Circle 67 on reader service card

Instantly Visualize Concepts

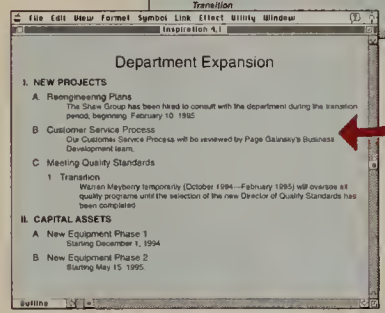
Getting clear and focused right at the start of a project is often the most difficult part. The next time you begin to develop an idea or plan, use Inspiration®—the real-time idea development tool for quickly clarifying and organizing your thoughts.



Instantly Rapid Fire™ your ideas and see your thinking take form.



Organize your ideas easily into tree charts and presentation visuals in the Diagram View.



At any time, flip to the fully integrated Outline View.

Call (800)877-4292 to request your

FREE IDEA BOOKLETS

Instant Idea Clarification · Quality Diagrams & Process Flows
Effective Idea Meetings · Quick Presentation Visuals

Inspiration®

The Real-Time Idea Development Tool

Inspiration Software®, Inc.
503.297.3004 Tel. • 503.297.4676 Fax
Web Site http://www.inspiration.com

©1995 Inspiration Software®, Inc.

Bugs and Turkeys

Softkey's (800/227-5609) American Heritage Dictionary 3.0 crashes if installed on a Mac with more than 16MB of RAM. To fix, upgrade to 3.6.1—ask for the special "memory issue" price of $12.95; otherwise, it's $29.95.

Unlike the PC version of Netscape Navigator 2.0, the Mac version does not support Java, and won't until version 2.1. Netscape Communications (415/528-2555, *info@netscape.com*) says it has had a hard time finding experienced Mac programmers.

Macworld will send you a Bug Report or Turkey Shoot T-shirt if you are the first to inform us of a turkey or a serious, reproducible bug that we report in this column. See How to Contact Macworld.

When I called Spirit Technologies in late December, I couldn't reach anyone—this was not an entirely surprising outcome, considering that it was the holiday week.

However, according to the recording on Spirit's main number in a post–New Year's follow-up call, Spirit Technologies is no longer in business. Callers with customer-service–related issues are referred to LB Technologies (510/656-3791); all other business-related questions should be directed to Lisa Donahue of The Recovery Group (617/482-4242, fax 617/482-9804). Spirit Technologies' direct-sales division, Spin Peripherals, is now part of MacMall, according to a Spin Peripherals phone recording. Users with Spin drives or with questions regarding Spin products should call MacMall at 800/222-2808.

Leo Berengual, president of LB Technologies, says the company will repair Spirit products as Spirit's taped message states, but that it "charges a fee for processing"—anywhere from $19 to $79 for in-warranty repairs. For out-of-warranty repairs, the company charges a flat $69 diagnostic fee, plus repair costs. Berengual also warns that if the warranty on a defective part is rejected by the manufacturer, LB Technologies charges for the repair as it would an out-of-warranty product. Prices are subject to change, so users should call for a quote before sending in equipment for repair.

Macworld's Conspicuous Consumer *column of September 1994 offered suggestions for dealing with companies that are no longer in business. If you use a credit card to pay for merchandise you never received, dispute the charges with the credit card company. And stay abreast of the latest news—if a company actually files for bankruptcy, file a claim as soon as possible with the bankruptcy court in the area in which the company is located (the court clerk's office can send the form). Filing a claim doesn't guarantee you will be reimbursed any money the company owes you, but at least you will be in line with the other creditors.*

When Macworld *went to press, the Massachusetts Bankruptcy Court (617/565-8950) had no listing for Spirit Technologies.*

—SUZANNE COURTEAU

When *Macworld* senior editor HOWARD BALDWIN asked his niece, a Performa owner, what she wanted for her birthday, she replied, "More RAM."

Not getting the treatment you deserve? Or have you received heroic service? Write to the *Consumer Advocate* department at *Macworld*, 501 Second St., San Francisco, CA 94107, or send us a fax at 415/442-0766. **m**

Service HERO

Contributing editor David Pogue's lousy Friday got worse when his PowerBook Duo fell off the table and struck the floor. Parts and components sprayed everywhere: a battery here, a trackball there, a back-panel flap over by the sink.

In a panic, he put the parts into a sandwich bag and took them, with the dismembered laptop, to Tekserve (212/929-3645), a New York City Mac-service and -repair shop. The technician, barely concealing his amusement at the sight of the sandwich bag, reseated each component, wiggled the case back into alignment, tightened the screw, and handed the whole thing back to Pogue.

"There you go. No charge," he said.

"Wow," said David, "don't I owe you something?"

"Look, If I brought you a broken radio, and all it needed was for you to bend the antenna back into alignment, would you charge me?"

"I guess not," Pogue said.

Star Ratings

HARDWARE AND SOFTWARE PRODUCTS AT A GLANCE

Macworld Star Ratings lets you compare Macintosh products based on the authoritative assessments in our reviews and features. The number of stars indicates the product's level of quality; each product also gets a numeric score that provides a more exact assessment of the product's quality within that level. We evaluate seven factors to derive the Star Rating: feature set, design implementation, performance, reliability, ease of use, innovation, and value. We take these evaluations, weight their importance for each class of product, and calculate the final score. The higher the score, the better a product is, even among products with the same number of stars. The following list shows how the ratings and scores relate.

★★★★★	9.0 to 10.0	Outstanding
★★★★	7.0 to 8.9	Very Good
★★★	5.0 to 6.9	Good
★★	3.0 to 4.9	Flawed
★	0.0 to 2.9	Unacceptable

This section also lists products that have been awarded an **Editors' Choice** designation in a *Macworld* product comparison.

If a product has been upgraded since our last assessment, the most recent version number appears in parentheses after the main reviewed version number. To read a full review of any product in the listing, please consult the issue indicated at the end of the listing or search for the product via Macworld Online (keyword *Macworld* on America Online; URL *http://www.macworld.com* on the World Wide Web).

Vendors: Please write to *Macworld Star Ratings*, 501 Second St., San Francisco, CA 94107 to inform us of changes in the version number or list price of your product, or of changes to your phone number.

software

BUSINESS TOOLS

★★★★/8.8 **4th Dimension 3.5,** ACI US, 408/252-4444, $895. Leading Mac database gets important improvements. *Mar 96, p. 60*

★★ **Adobe Acrobat 2.0 (2.1),** Adobe Systems, 415/961-4400, $195. The font fidelity of this portable-document software is uneven. *Mar 95, p. 59*

★★★ **Adobe Acrobat for Workgroups 2.0 (2.1),** Adobe Systems, 415/961-4400, $1595. Portable-document software for workgroups is inexpensive but resource-intensive. *Mar 95, p. 59*

★★★★ **ArcView 2.1,** Environmental Systems Research Institute, 909/793-2853, ext. 2050, $995. Sophisticated GIS program is easy to customize. *Jan 96, p. 55*

★★★★ **BizPlan Builder 5.0,** Jian, 415/254-5600, $129. Easy-to-use spreadsheet/word processor template creates business plans. *Jun 95, p. 61*

★★★ **Business Plan Writer 6.0,** Graphite Software, 301/984-1100, $99. Proposal-writing template helps you create a detailed business plan. *Jun 95, p. 61*

★★★★★/9.7 **Data Desk 5.0,** Data Description, 607/257-1000, $625. Classic statistics program adds dazzling new features. *Mar 96, p. 79*

★★★★★ **DeltaGraph Pro 3.5,** DeltaPoint, 408/648-4000, $195. Easy-to-use graphing software stands out from the pack. *Jan 96, p. 57*

★★★ **Equate 1.0,** Holosoft, 408/748-9648, $99. Newton spreadsheet is compatible with Excel. *Oct 95, p. 85*

★★★★ **Helix Express 3.03,** Helix Technologies, 708/465-0242, $589. Latest release of visually oriented database adds speed and features. *Sep 95, p. 65*

★★★★ **MapInfo 3.0,** MapInfo, 518/285-6000, $1295. Mapping software includes advanced geographic-analysis and geocoding tools. *Oct 95, p. 66*

★★★ **Meeting Maker XP 3.1,** On Technology, 617/374-1400, $249; $890 for 10 users. Group scheduling program is useful for small and midsize businesses. *Jan 96, p. 69*

★★★★ **Microsoft Excel 5.0,** Microsoft, 206/882-8080, $339. A wealth of powerful features but huge hardware requirements. *Jan 95, p. 54*

★★★★ **Microsoft FoxPro for Macintosh 2.5 (2.6),** Microsoft, 206/882-8080, $495. The relational database offers fast searching but an uneven interface for users. *Apr 94, p. 56*

★★★ **PhoneDisc 95 PowerFinder,** Digital Directory Assistance, 617/639-2900, $249. CD-ROM–based phone directory is convenient, but must be updated periodically. *Oct 95, p. 91*

★★★ **Phyla 1.0.3,** Mainstay, 805/484-9400, $495. While nonprogrammers can learn to use this object-oriented database, a little SmallTalk or C++ programming background wouldn't hurt. *Aug 95*

★★★ **QuickFigure Pro 2.1,** PelicanWare, 503/221-1148, $49.95. Newton spreadsheet includes charting and linear equation solving. *Oct 95, p. 85*

COMMUNICATIONS/NETWORKS

★★★★ **Apple Mobile Message System,** Apple Computer, 408/996-1010, $549; $19.95 per month. Multifaceted remote-messaging service helps you keep in touch. *Sep 95, p. 74*

★★★★ **ASAP 1.5,** MicroBeam, 813/546-2727, $695; $795 with Windows client program. Convenient utility makes file-transfer operations quick and easy. *Sep 95, p. 72*

★★★ **Claris Emailer 1.0,** Claris, 408/727-8227, $89. E-mail–management program offers impressive features at a good price. *Dec 95, p. 62*

★★/4.6 **COPSTalk for Windows 1.2f,** CoOperative Printing Solutions, 770/840-0810, $179 per user. Windows 95–compatible software gives PCs AppleTalk capability. *Mar 96, p. 67*

★★★ **CreativePartner,** emotion Inc., 415/812-9000, $1500. Collaboration tool distributes video, sound, text, and graphics over a network. *Jul 95, p. 69*

★★/4.9 **CyberFinder 2.0,** Aladdin Systems, 408/761-6200, $30. Software uses the Finder to track Internet URLs. *Mar 95, p. 82*

★★★★ **FileWave 2.1.2,** Wave Research, 510/704-3900, $895. Update LAN users with this easy-to-use software-distribution tool. *Jul 95, p. 63*

★★★ **GrabNet 1.0,** ForeFront Group, 713/961-1101, $19.95. Simple, affordable utility captures Web pages. *Nov 95, p. 85*

★★ **HoloGate 1.0,** Information Access Technologies, 510/704-0160, $500. E-mail gateway is price-rich and feature-poor. *Apr 95, p. 71*

★★★★ **MacAdministrator,** Hi Resolution, 508/463-6956, $395 (10-user pack). Group administration tool is a great helper for network administrators. *Dec 95, p. 75*

★★★★ **Netscape Navigator,** Netscape Communications, 415/528-2555, $39. Web browser is ahead of the pack in terms of features and ease of use. *May 95, p. 69.* **Editors' Choice** for best Internet browser. *Oct 95, p. 110*

★★★★ **NetWorks 3.0.4,** Caravelle Networks, 613/225-1172, $1395 to $2495. Network-monitoring utility is an indispensable tool. *Apr 95, p. 85*

★★★/6.9 **PageMill 1.0,** Adobe Systems, 415/961-4400, $149. Drag-and-drop Web publishing software masks HTML complexities. *Mar 96, p. 56*

★★★★/8.8 **PageNow 1.5,** Mark/Space Softworks, 408/293-7299, $119. Alphanumeric paging software gets the message across. *Mar 96, p. 70*

★★★/5.8 **Personal MacLAN Connect 5.51,** Miramar Systems, 805/966-2432, $199 per user. Windows 95–compatible software lets PC and Mac users communicate via AppleTalk. *Mar 96, p. 67*

★★★★ **ProTerm Mac 1.0,** InTrec Software, 602/992-5515, $129.95. Communications program is fast, reliable, and stable. *Jul 95, p. 71*

★★★ **QuickMail 3.0 (3.5),** CE Software, 515/221-

continues

Star Ratings

1801, $199 to $3799. Good choice for most people, although rule-based features are incomplete. *Jan 95, p. 59*

★★★ **Saber LAN Workstation,** Saber Software, 214/361-8086, $199 plus $49 per node. LAN-management package is a useful tool for the price. *Aug 95, p. 73*

★★★★ **Skyline/Satellite,** AG Group, 510/937-7900, 1-station pack $795; 5-station pack $1195; 10-station pack $1995. Remote monitoring engines keep an eye on LAN traffic. *Sep 95, p. 74*

★★★ **SnapMail 2,** Casady & Greene, 408/484-9228, $250 (5 users); $420 (10 users); $1940 (50 users). E-mail software is easy to install, but its gateway interface is kludgy. *Dec 95, p. 75*

★★★★ **Snatcher 1.0,** Software Ventures, 510/644-3232, $49.95. Simple, efficient FTP tool lets you connect to multiple sites simultaneously. *Aug 95, p. 81*

★★ **TurboTalk 1.0,** Information Presentation Technologies, 805/541-3000, $160 to $495. Network utility's performance is unimpressive on some network configurations. *Oct 95, p. 83*

DESKTOP PUBLISHING

★★★★ **Adobe PageMaker 6.0,** Adobe Systems, 206/622-5500, $895. Page-layout program's upgrade includes practical and powerful improvements. *Nov 95, p. 60*

★★★ **ColorDrive 1.0,** Pantone, 201/935-5500, $199. Color-management software supports a broad range of color models. *Nov 95, p. 70*

★★★★ **FrameMaker 5.0,** Adobe Systems, 408/975-6000, $895. Page-layout program is a good choice for technical-document creation. *Nov 95, p. 63*

★ **HoTMetal Pro 2.0,** SoftQuad, 416/239-4801, $195. Web authoring software is hampered by a poorly designed interface. *Jan 96, p. 65*

★★★★ **Icefields 2.3,** The Color Partnership, 619/259-8688, $895. Professional printers will appreciate this stochastic-screening software. *Nov 95, p. 75*

★★★★ **QuarkXPress 3.2 (3.31),** Quark, 303/894-8888, $895 ($995 for Power Macintosh). A must-have layout tool for color publishers. *Nov 93, p. 51*

★★★★ **theTypeBook 4.0,** Rascal Software, 805/255-6823, $59.95. Customizable type-specimen generator is a worthwhile purchase. *Jun 95, p. 73*

EDUCATION/ENTERTAINMENT

★★★★ **3D Atlas 1.1,** EA World, 415/571-7171, $79.95. Well-designed atlas enriches map data with narration, photos, and movies. *May 95, p. 73*

★★★ **AmoebArena 1.0,** Casady & Greene, 408/484-9228, $49.95. Engaging strategy game pits amoeboid against amoeboid. *Jan 96, p. 75*

★★★ **CyberBoogie,** Times Mirror Multimedia, 314/531-2503, $49.95. Cute animation software is a good choice for very young kids. *Apr 95, p. 89*

★★★★ **The Daedalus Encounter,** Virgin Interactive Entertainment, 714/833-8710, $59.95. Escape from a doomed spacecraft in this interactive adventure. *Sep 95, p. 73*

★★★ **Digital Chisel 1.2,** Pierian Spring Software, 503/222-2044, $199.95, site license $995. Authoring tool creates good interactive quizzes but suffers from a nonstandard interface. *Jun 95, p. 71*

★★★ **FrenchNow 3.0,** Transparent Language, 603/465-2230, $99 to $129. While it doesn't replace a class, software can help you learn French. *Dec 95, p. 83*

★★★★ **Full Throttle,** LucasArts, 415/472-3400, $49.95. Biker adventure game is witty and action-packed. *Jan 96, p. 73*

★★ **Haight-Ashbury in the Sixties,** Compton's NewMedia, 619/939-2500, $49.95. If you can remember the sixties, you probably don't need this CD-ROM. *Dec 95, p. 84*

★★★ **King's Quest VII: The Princeless Bride,** Sierra Online, 206/649-9800, $59.95. Adventure game is entertaining, but adults might find its plot silly. *Jan 96, p. 75*

★★★ **The Legend of Kyrandia, Book 3,** Virgin Interactive Entertainment, 714/833-1999, $34.95. Enjoyable adventure game features good graphics and sound. *Jan 96, p. 77*

★★★★ **Links Pro CD,** Access Software, 801/359-2900, $69.95. An excellent simulation of golf's many challenges. *Jan 96, p. 73*

★★★★ **The Lost Mind of Dr. Brain,** Sierra On-Line, 206/649-9800, $44.95. Hilarious brainteasers are presented in an imaginative, arcade style. *Oct 95, p. 93*

★★★★/8.5 **Marathon 2: Durandal,** Bungie Software Products, 312/563-6200, $79. A well-crafted action-adventure game, but it's not for the squeamish or those disturbed by violence. *Mar 96, p. 85*

★★★★ **Material World,** StarPress Multimedia, 415/274-8383, $59.95. Multimedia CD-ROM provides a fascinating look at diverse cultures. *Jun 95, p. 83*

★★★★ **Math Workshop,** Brøderbund Software, 415/382-4700, $40. Youngsters can have some fun while learning math. *Aug 95, p. 89*

★★ **Merriam-Webster's Collegiate Dictionary on CD-ROM,** Merriam-Webster, 413/734-3134, $69.95. Powerful search capabilities don't make up for this dictionary's interface flaws. *Nov 95, p. 79*

★★★★ **Nile: Passage to Egypt,** Discovery Channel Multimedia, 301/986-1999, $49.95. Armchair adventurers will enjoy this multimedia journey on CD-ROM. *Oct 95, p. 93*

★★★ **Out of the Sun,** Domark software, 415/513-8929, $44.95. Flight-simulation game presents historic or custom battle scenarios. *Jan 96, p. 77*

★★★★★ **Passage to Vietnam,** Against All Odds Productions/Interval, 800/558-3388, dept. 100, $39.95 to $59.95. Stunning photojournalism CD-ROM sets a new standard for multimedia projects. *Dec 95, p. 83*

★★★ **Small Blue Planet 2.0 (2.0.1),** Now What? Software, 415/885-1689, $59.95. The satellite photos of this atlas are truly dazzling, although the interface is less than world class. *May 95, p. 73*

★★★★ **Storybook Weaver Deluxe 1.0,** MECC, 612/569-1500, $69.95. Well-designed program lets kids create their own storybooks. *May 95, p. 83*

★★★★ **Theorist 2.0,** Waterloo Maple Software, 519/747-2373, $299. Symbolic-math program is a great learning aid for students. *Jun 95, p. 79*

★★★★ **Widget Workshop,** Maxis Software, 510/254-9700, $44.95. Clever mad scientist's laboratory encourages imagination and exploration. *Apr 95, p. 89*

★★★★/8.9 **You Don't Know Jack,** Berkeley Systems, 510/540-5535, $30. "Jeopardy!" with a bad attitude. *Mar 96, p. 85*

FINANCE/ACCOUNTING

★★★★ **Managing Your Money 7.0,** MECA Software, 203/255-1441, $79.95. Personal financial software includes advanced investment features. *Oct 95, p. 81*

★★★★ **M.Y.O.B. 5.0,** BestWare, 201/586-2200, $139 ($239 with payroll). Well-designed interface makes double-entry accounting easy. *May 95, p. 63*

★★★ **QuickBooks 3.0,** Intuit, 415/322-0573, $119. Double-entry accounting program is easy to use but not entirely Mac-like. *Jun 95, p. 58*

★★★★/8.3 **Quicken Deluxe 6,** Intuit, 520/295-3220, $59.99. The best-selling package gets bigger and mostly better. *Feb 96, p. 65*

GRAPHICS

★★★ **AddDepth 2.0,** Ray Dream, 415/960-0768, $99. Three-dimensional effects software provides a simple way to give depth to illustrations. *Nov 95, p. 81*

★★★★/8.4 **Adobe After Effects 3.0,** Adobe Systems, 415/961-4400, $995 base version; $1995 Production Bundle. Must-have video-design package enhances motion control and adds effects. *Mar 96, p. 54*

★★★★ **Adobe Dimensions 2.0,** Adobe Systems, 415/961-4400, $199. 3-D effects software has added color support plus drawing and text tools. *Apr 95, p. 71*

★★★★ **Adobe Photoshop 3.0 (3.0.4),** Adobe Systems, 415/961-4400, $895. Broader capabilities combine with simplified work environment. *Jan 95, p. 52.* **Editors' Choice** for best image editor. *Feb 95, p. 112*

★★★★/7.4 **Adobe Premiere 4.2,** Adobe Systems, 415/961-4400, $795. Video editor offers significant enhancements, including CD-ROM Movie Maker plug-in. *Mar 96, p. 90*

★★★ **Adobe TextureMaker 1.0 (2.0),** Adobe Systems, 415/961-4400, $199. Texture generator creates backgrounds for multimedia or printed projects. *Oct 95, p. 89*

★★★ **Alien Skin Textureshop 1.0,** Virtus, 919/467-9700, $99. Apply random mutations to master textures to create custom patterns. *Jul 95, p. 81*

★★★ **Black Box 2.0,** Alien Skin Software, 919/832-4124, $119. Photoshop image filters are useful and worth their modest price. *Nov 95, p. 87*

★★★/6.9 **Boris Effects 1.01,** Artel Software, 617/566-0870, Premiere version $350; Media 100 version $695. Plug-in for Premiere and Media 100 adds video-effects control. *Feb 96, p. 85*

★★★ **Canvas 3.5 (3.5.2),** Deneba Software, 305/596-5644, $399. Lots of features but confusing interface. *Jan 94, p. 49*

★★★ **CD-Q 2.0,** Human Software Company, 408/741-5101, $145. Photoshop plug-in facilitates color corrections and separations on Photo CDs. *Jul 95, p. 65*

★/1.5 **Chagall 2.0.2,** Technosystems USA, 502/351-0108, $299. Image-editing application flunks test. *Feb 96, p. 78*

★★★★/8.0 **Claris Impact 2.0,** Claris, 408/987-7000, $99. Easy and affordable business-graphics software. *Feb 96, p. 66*

★★★★ **Color It 3.0,** MicroFrontier, 515/270-8109, $149.95. Venerable paint program has been updated with powerful new features. *Aug 95, p. 75*

★★★ **Colorize 2.0,** DS Design, 919/319-1770, $495. Colorizing software is effective, but expensive for

a one-trick pony. *Dec 95, p. 81*

★★★★/7.5 **Dabbler 2,** Fractal Design, 408/688-5300, $69. Drawing package offers an easy, affordable natural-painting option. *Mar 96, p. 63*

★★★★/7.3 **DrawTools 1.0,** Extensis, 503/274-2020, $149. Extensions add color, shape, and object tools to FreeHand and Illustrator. *Feb 96, p. 71*

★★/4.5 **Envelopes 1.0,** Letraset USA, 800/343-8973, $99. Distorts objects but inserts extraneous anchor points as well. *Mar 96, p. 106*

★★ **FloorPlan Plus 1.1,** ComputerEasy International, 602/829-9614, $49.95. Affordable 2-D CAD program is intended for rudimentary design tasks. *Sep 95, p. 85*

★★★ **FullPixelSearch 1.5,** Avian Systems, 201/224-2025, $1295. Analyze scientific images with a variety of pixel-selection functions. *Jul 95, p. 79*

★★★ **Gryphon Batch It 1.0,** Gryphon Software, 619/536-8815, $199. Although it lacks conditional statements, batch processor is a time-saver. *Jun 95, p. 67*

★★★★ **Infini-D 3.0,** Specular International, 413/253-3100, $899. 3-D software does professional-quality rendering and animation. *Jan 96, p. 54*

★★/3.3 **Infinite FX 1.0,** BeInfinite, 404/552-6624, $149. Many automated reshaping effects, mired by poor organization. *Mar 96, p. 106*

★★★ **Intellihance 1.0,** DPA Software, 214/517-6876, $129 to $299. Photoshop plug-in automates the process of improving scanned graphics. *Sep 95, p. 71*

★★★★/8.3 **Kai's Power Tools 3.0,** MetaTools, 805/566-6200, $199. More-powerful plug-ins, more-baffling interface. *Feb 96, p. 57*

★★★★ **KPT Convolver 1.0,** MetaTools, 805/566-6200, $199. Imaginative and absorbing plug-in module creates Photoshop filters. *Aug 95, p. 71*

★★★★/8.5 **KPT Vector Effects 1.0,** MetaTools, 805/566-6200, $199. Combines excellent experimentation functions with thoughtful interface design. *Mar 96, p. 106.* **Editors' Choice** for best natural-draw program.

★★★/6.2 **LightningDraw GX 1.0,** Lari Software, 919/968-0701, $299. Lets you combine colors and shapes and experiment with QuickDraw GX fonts. *Mar 96, p. 106*

★★★★ **Live Picture 2.0,** HSC Software, 805/566-6200, $995. Latest version of this innovative image editor boasts many improvements. *Sep 95, p. 62*

★★★★ **MacPhase 2.0,** The Otter Solution, 315/768-3956, $279. Feature-rich program offers scientific and graphics image processing tools. *Aug 95, p. 85*

★★★★/8.1 **Macromedia FreeHand 5.5,** Macromedia, 415/252-2000, $595. Draw program outperforms competitor, for now. *Feb 96, p. 74*

★★★★/8.1 **MiniCad 6,** Graphsoft, 410/290-5114, $795. Nothing's small about this modular package. *Mar 96, p. 65*

★★★ **MovieFlo' 1.1,** The Valis Group, 415/435-5404, $899. Tug, twist, and pinch images with this special-effects program. *Jun 95, p. 60*

★★★★ **Paint Alchemy 2.0,** Xaos Tools, 415/487-7000, $199. Flexible image editor is an appealing add-on for digital artists. *Sep 95, p. 70*

★★★★★/9.4 **Painter 4,** Fractal Design, 408/688-5300, $549. Near-perfect painting program just got even better. *Mar 96, p. 58*

★★★★ **PhotoEnhancer 1.0,** PictureWorks, 510/855-2001, $129. Nifty utility improves the quality of QuickTake photos. *Apr 95, p. 65*

★★★ **PhotoFix 2.8.8,** Microspot USA, 408/253-2000, $249. Image-editing/photo-enhancement program is a useful tool. *Sep 95, p. 81*

★★★ **PhotoFlash 2.0,** Apple Computer, 408/996-1010, $129. Image-editing utility provides basic image-retouching tools at a reasonable price. *Jul 95, p. 67*

★★ **PhotoFusion 2.0.3,** Ultimate, 818/993-8007, $695. Photoshop compositing plug-in is hampered by a poor interface. *Oct 95, p. 83*

★★★ **PixelPutty Solo (1.5),** The Valis Group, 415/435-5404, $399. Affordable modeler lets you manipulate 3-D objects as if they were clay. *Jun 95, p. 77*

★★★★ **Poser 1.0,** Fractal Design, 408/668-5300, $199. 3-D illustration tool generates posable human figures. *Oct 95, p. 63*

★★★★ **PowerCADD 2.0,** Engineered Software, 910/299-4843, $795. CAD program features exceptional speed and an extensive array of tools. *Oct 95, p. 77*

★★★★/7.2 **QX-Tools 1.0,** Extensis, 503/274-2020, $149. Ten XTensions that make QuarkXPress more powerful. *Feb 96, p. 73*

★★★ **Ray Dream Designer 3.1.1,** Ray Dream, 415/960-0768, $349. 3-D graphics program provides competent modeling tools and excellent rendering. *Mar 95, p. 61*

★★ **Select 1.6,** Human Software, 408/741-5101, $245. CMYK color-correction plug-in duplicates many Photoshop functions. *Jul 95, p. 81*

★★★★/8.7 **SmartSketch 1.0,** FutureWave Software, 619/637-6190, $69.95. Makes drawing and editing paths as easy as painting. *Mar 96, p. 106.* **Editors' Choice** for best natural-draw programs.

★★★/5.0 **Tracer 1.0,** ScanVec, 508/694-9488, $795. Excellent but expensive autotracing. *Feb 96, p. 85*

★★★★ **Transverter Pro 3.0,** TechPool Studios, 216/382-1234, $395. Graphics-conversion tool deserves a place in every desktop publisher's toolbox. *Nov 95, p. 77*

★★★★/8.7 **upFront 2.0.1,** SketchTech, 612/379-1435, $299. A new vendor—SketchTech—improves Alias's venerable entry-level 3-D modeling package. *Mar 96, p. 86*

★★★ **Virtus WalkThrough Pro 2.0,** Virtus, 919/467-9700, $495. Aside from occasional stumbles, this 3-D design tool is an exceptional program. *Apr 95, p. 59*

★★★★ **Vision 3d 4.0,** Strata, 801/628-5218, $695. 3-D modeling, rendering, and animation package offers excellent tools. *Jul 95, p. 56*

★★★ **Working Model,** Visual Basic, 415/574-7777, $2495. Motion-simulation system is a fine product, but a Power Mac version is needed. *Dec 95, p. 79*

★★ **xRes 1.11,** Fauve Software, 415/543-7178, $799. Image editor applies a variety of effects to selected areas of a large composition. *Jul 95, p. 60*

MATH/SCIENCE

★★★★ **The Fuzzy Logic Toolbox 1.0,** MathWorks, 508/653-1415, $895. Math-simulation aid incorporates fuzzy logic into models. *Sep 95, p. 89*

★★★★/7.5 **Igor Pro 2.0.4,** WaveMetrics, 503/620-3001, $495. Top-notch scientific graphing package. *Feb 96, p. 90*

★★★★ **LabView 3.1,** National Instruments, 512/794-0100, $1995. Instrumentation software can emulate most scientific and electronic test-bench instruments. *Nov 95, p. 62*

★★★★ **MLab,** Civilized Software, 301/652-4714, $1495. Mathematical-modeling software does fast computations on real-world problems. *Apr 95, p. 83*

★★★★/7.1 **SPSS 6.1,** SPSS, 312/329-2400, $695; modules $395 to $495. Mainframe statistics giant has new Mac interface. *Feb 96, p. 82*

★★★★/8.3 **StatView 4.5,** Abacus Concepts, 510/540-1949, $595. Statistics and graphing package. *Feb 96, p. 81*

ORGANIZATION/PRODUCTIVITY

★★★★ **ClarisWorks 4.0,** Claris, 408/727-8227, $129. Integrated program's word processor and database are superb. *Oct 95, p. 62.* **Editors' Choice** for best integrated software. *Nov 95, p. 124*

★★ **ClienTrac 2.0,** Whiskey Hill Software, 415/851-8702, $99. PIM is easy to use but slim on speed, features, and flexibility. *May 95, p. 75*

★★/3.7 **Day-Timer Organizer 2.0,** Day-Timer Technologies, 415/572-6260, $59.95. PIM has some rough edges. *Mar 96, p. 92*

★★★ **Expresso 1.0,** Berkeley Systems, 510/540-5535, $69.99. Calendar program is attractive and easy to use but its address book is weak. *Apr 95, p. 73*

★★★ **FastTrack Schedule 3.0,** AEC Software, 703/450-1980, $299. Updated version of this project planner includes customizable features. *Aug 95, p. 79*

★★★★ **In Control for Workgroups 3.5,** Attain, 617/776-1110, $149.95; 10-pack $949.95. Flexible project planner/scheduler combines an outliner and a calendar. *Sep 95, p. 93*

★★★ **InfoGenie 1.0.5,** Casady & Greene, 408/484-9228, $79.95. Free-form data manager is appealing but lacks some of the competition's features. *Nov 95, p. 87*

★★★ **InTouch 2.5,** Prairie Group, 515/225-3720, $69.95. Free-form contact manager offers speedy access to information. *Sep 95, p. 69*

★★★ **Microsoft Works 4.0,** Microsoft, 206/882-8080, $99.95. Good word processing and drawing tools; poor spreadsheet and database modules. *Jan 95, p. 63*

★★★★ **Now Up-to-Date and Contact 3.5,** Now Software, 503/274-2800, $99. Calendar/address book combo features several enhancements. *Nov 95, p. 68*

★★ **Peanuts Family Organizer 1.0,** Individual Software, 510/734-6767, $19.95. Organizer's endearing interface doesn't make up for missing features. *Jun 95, p. 81*

PRESENTATION TOOLS

★★★★ **Adobe Premiere 4.0 (4.0.1),** Adobe Systems, 415/961-4400, $795. Advances far and above its competitors with professional-level features. *Dec 94, p. 54*

★★★★/7.1 **Astound 2.0,** Gold Disk, 408/982-0200, $249. Presentation graphics with a multimedia twist. *Mar 96, p. 73*

★★★★ **Authorware Professional 3.0,** Macromedia, 415/252-2000, $4995. Multimedia authoring program is feature-packed but costly. *Dec 95, p. 66*

★★★ **CyberSound FX 1.0,** InVision Interactive, 415/812-7380, $129. Plug-ins for Premiere make audio more polished, but access is cumbersome.

continues

Star Ratings

Nov 95, p. 91

★★★ **Electronic Marker 1.0.2,** Consumer Technology Northwest, 503/643-1662, $34.95. Annotation tool can enhance demonstrations but needs better layer tools. *May 95, p. 71*

★★★ **HyperCard 2.3,** Apple Computer, 408/996-1010, $129. Authoring tool is an inexpensive solution for multimedia developers. *Nov 95, p. 66*

★★ **Living Album 2.5,** QuickMedia Labs, 408/749-9200, $129.95. Multimedia album is hampered by a crowded interface. *May 95, p. 81*

★ **MediaFactory 1.0,** Nuts Technologies, 408/980-7800, $199. Entry-level QuickTime movie editor has an awkward interface. *Nov 95, p. 89*

★★★★ **MediaPaint 1.0,** Strata, 801/628-5218, $695. QuickTime paint program lets multimedia developers edit ranges of frames. *Sep 95, p. 56*

★★★ **Microsoft PowerPoint 4.0,** Microsoft, 206/882-8080, $339. Presentation-graphics program is a good choice to use along with Word or Excel. *Feb 95, p. 67*

★★ **mPower 2.0,** Multimedia Design, 704/523-9493, $295. Multimedia authoring tool is too limited to be compelling. *Apr 95, p. 81*

★★★★ **Persuasion 3.0,** Adobe Systems, 206/622-5500, $495. Extensive charting options and hypertext options are key additions. *Sep 94, p. 65*

★★★★ **Presenter Professional 3.0,** VIDI, 818/358-3936, $1995. 3-D modeling/animation package is an excellent choice for multimedia producers. *May 95, p. 59*

★★ **Special Delivery 2.0,** Interactive Media, 415/948-0745, $399. Multimedia authoring tool isn't the best choice for complex projects. *Apr 95, p. 79*

★★★★ **TransJammer**, Elastic Reality, 608/273-6585, $99. Plug-in for Premiere and VideoShop offers 100 video-transition effects. *Aug 95, p. 83*

PROGRAMMING

★★★★ **AppWare 1.2,** Novell, 801/429-7000, $495. Development system features an easy-to-use graphical programming method. *Oct 95, p. 68*

★★★★/8.4 **CodeWarrior Gold 7,** Metrowerks, 512/305-0400, $399. Key Power Mac compiler gets yet another face-lift. *Mar 96, p. 69*

★★★★ **FaceSpan 2.0,** Software Designs Unlimited, 214/578-6700, $199. AppleScript interface builder lets developers create sophisticated applications. *Nov 95, p. 64*

★★★★ **JAM 6,** JYACC, 212/267-7722, $2000. Development tools enable creation of large-scale corporate client-server databases. *Oct 95, p. 70*

★★★★/8.0 **LS FORTRAN 1.1,** Fortner Research, 703/478-0181, $695. FORTRAN rides again, running science programs on the Power Mac desktop. *Feb 96, p. 95*

★★★ **Script Debugger 1.0,** Late Night Software, 604/929-5578, $129. Script-development software improves on AppleScript, except in the debugging department. *Nov 95, p. 85*

★★★★/8.4 **Scripter 1.0.1,** Main Event Software, 202/298-9595, $199. AppleScript development system offers serious debugging power. *Mar 96, p. 88*

★★★ **Symantec C++ 8.0,** Symantec, 503/334-6054, $499. Compiler has been improved and expanded but demands lots of resources. *Jul 95, p. 62*

★★★★/7.0 **Tools Plus 2.6,** Water's Edge Software, 416/219-5628, For Symantec's C/C++ and Pascal $149 each; for both $199; for CodeWarrior Bronze $199; for CodeWarrior Gold $249. Programmers' tool kit saves time. *Feb 96, p. 92*

UTILITIES

★★ **Adobe ScreenReady 1.0,** Adobe Systems, 415/961-4400, $199. PostScript image rasterizer can aid multimedia developers but has some flaws. *Dec 95, p. 71*

★★★ **Aladdin Desktop Tools 1.0,** Aladdin Systems, 408/761-6200, $89.95. Utilities collection is uneven but a worthwhile buy. *Aug 95, p. 69*

★★★ **Arcserve for Macintosh 1.5,** Cheyenne Software, 516/484-5110, $245 (5 users); $495 (20 users). A good backup program for mixed-platform networks. *Jan 96, p. 63*

★★★/6.2 **At Ease 3.0,** Claris, 408/727-8227, $46. This desktop alternative lets you share your Mac and worry less. *Feb 96, p. 81*

★★★★ **At Ease 3.0 for Workgroups,** Apple Computer, 408/996-1010, $295. Desktop alternative is a handy tool for network administrators. *Nov 95, p. 83*

★★★★ **BeyondPress 1.0,** Astrobyte LC, 303/534-6344, $595. QuarkXPress XTension is a great way to convert documents to Web pages. *Dec 95, p. 73*

★★★ **CanOpener 3.0,** Abbott Systems, 914/747-4171, $125. Utility opens many types of files but falls short in file-search department. *May 95, p. 67*

★★★★ **CD Directory 1.0,** Insignia Solutions, 415/694-7600, $69.95. Utility stores catalogs of CD directories on a hard drive. *Jul 95, p. 73*

★★★ **Color Compass 1.0,** Praxisoft, 703/729-3391, $129. Speedy, specialized tools blend, match, and tweak colors. *Aug 95, p. 77*

★★★★★ **Conflict Catcher 3,** Casady & Greene, 408/484-9228, $99.95. Extension-management utility offers a friendly, flexible approach to conflict resolution. *Sep 95, p. 69*

★★★★ **Disc-To-Disk,** Optical Media International, 408/376-3511, $199. Audio-capture utility is a useful tool for multimedia authors. *Jun 95, p. 69*

★★★/6.8 **DOS Mounter 95 1.0,** Software Architects, 206/487-0122, $100. Windows-to-Mac file-transfer utility gets Win 95–savvy. *Mar 96, p. 74*

★★★ **DragStrip 1.0,** Natural Intelligence, 617/876-4876, $39.95. Icon-based file and folder organizer brings order to cluttered desktops. *May 95, p. 79*

★★★ **File Genie Pro 1.1,** Duet Development, 408/559-3838, $89. Disk- and file-management utility is fast but has limited search and sort criteria. *Oct 95, p. 87*

★★★★ **FolderBolt Pro 1.0.3,** Kent Marsh, 713/522-5625, $129.95. Top-notch encryption schemes secure your Mac's contents. *Jul 95, p. 77*

★★★ **Gear 2.5,** Elektroson, 610/617-0850, $799. CD-recordable mastering software is a mixed bag. *Sep 95, p. 91*

★★★★ **Graffiti 1.01,** Palm Computing, 415/949-9560, $79. Teach yourself a new writing system that Newton can handle. *May 95, p. 77*

★★★ **Here & Now 1.0,** Software Architects, 206/487-0122, $89.95. File-transfer utility facilitates putting a Mac disk in a PC. *Nov 95, p. 81*

★★★★ **InstantReplay 1.0,** Strata, 801/628-5218, $149. Utility records on-screen activity and saves it as a QuickTime movie. *Sep 95, p. 89*

★★/4.5 **MacOpener 1.0,** DataViz, 203/268-0030, $75. Unintuitive Mac-to-Windows file-transfer utility. *Mar 96, p. 75*

★★★ **MacTools Pro 4.0,** Symantec, 503/690-8090, $149.95. This utility does a good job of diagnosing and fixing disk problems, but suffers from large RAM requirements and expensive tech support. *May 95, p. 73*

★★★ **Menu Master Mac,** Electronic Learning Systems, 904/375-0558, $99; 15-site license $299. Security software is useful but could use some additional features. *Sep 95, p. 95*

★★★★ **MultiClip Pro 3.1,** Olduvai, 305/670-1112, $59. Utility is what Apple's Clipboard and Scrapbook should have been. *Apr 95, p. 67*

★★★ **Multimedia Utilities 1.1,** Motion Tool Works, 415/541-9333, $99.95. Six appealing utilities address QuickTime moviemaking but you should remember to save often. *Jul 95, p. 71*

★★★ **Norton Utilities for Macintosh 3.1,** Symantec, 503/334-6054, $149.95. Utilities suite features strong disk repair and data recovery but weak backup. *Feb 95, p. 63*

★★★★ **Now Utilities 5.0,** Now Software, 503/274-2800, $89. Well-integrated collection of utilities. *Jan 95, p. 65*

★★★ **On Cue II Utilities 3.0,** ComputerEasy International, 602/829-9614, $99.95. Eight utilities add functionality to the Mac Operating System. *Sep 95, p. 93*

★★★★ **OptiMem RAM Charger 2.0.1,** Jump Development Group, 412/681-2692, $129. Use RAM more efficiently with this memory-management utility. *Jul 95, p. 75*

★★★ **PaperPower 1.0,** Piptel, 513/294-6656, $149. Graphics-tablet utility is useful for macros, but its overlays can be tricky. *Apr 95, p. 87*

★★★★ **Power Secretary Power Edition 2.0,** Articulate Systems, 617/935-5656, $2495. Speech-recognition program learns your voice patterns as you use it. *Sep 95, p. 60*

★★★★ **QuicKeys 3.0,** CE Software, 515/221-1801, $139. Easy-to-use shortcut manager. *Mar 94, p. 61*

★★★★ **RAM Doubler 1.0.1 (1.5),** Connectix, 415/571-5100, $99. Inexpensive system extension really does double your RAM. *May 94.* **Editors' Choice** for best memory booster. *Jun 94, p. 118*

★★★ **RapidCD 1.04,** Insignia Solutions, 415/694-7600, $69.95. Utility provides speedy access to frequently used data on CD-ROM. *Jul 95, p. 73*

★★★ **RescueTxt 1.0,** Abbott Systems, 914/747-3116, $79. Text-retrieval utility works well but doesn't tell you the source file's name. *Apr 95, p. 83*

★★★★ **S/Link 2.0,** Synclavier, 603/448-8887, $249. Utility is a valuable aid for anyone who does audio file conversion. *Nov 95, p. 91*

★★★★/8.4 **SCSI Director Pro 4.0,** Transoft, 805/897-3350, $99.95. Hard disk formatting and testing utility. *Feb 96, p. 86*

★★★★/8.9 **Speed Doubler 1.0.2,** Connectix, 415/571-5100, $99. Connectix makes a Power Mac's 680X0 emulation feel native. *Feb 96, p. 56*

★★★★ **StuffIt Deluxe 3.5,** Aladdin Systems, 408/761-6200, $129.95. If you're looking for a compression solution, this is it. *Mar 95, p. 69*

★★★★ **TypeTamer 1.0.4,** Impossible Software, 714/470-4800, $59.95. Versatile font utility provides information on installed fonts and simplifies tasks such as typing special characters and reselecting fonts from the menu. *May 95, p. 77*

★★★ **ultraSecure 3.524,** usrEZ Software, 714/756-5140, $239. Security program offers a comprehensive set of protection tools. *Sep 95, p. 81*

★★★★ **Virex 5.5.1,** Datawatch, 508/988-9700, $99.95. Comprehensive, reliable, and speedy virus-detection utility helps protect files. *May 95, p. 65*

★★★ **Zonkers 1.0,** Nova Development, 818/591-9600, $19.95. Redecorate your Mac with a collection of silly desktop enhancements. *Aug 95, p. 89*

VERTICAL MARKETS

★★★ **ConcertWare 1.5.7,** Jump Software, 415/917-7460, $159. Music-notation program is affordable and easy to use, but lacks features. *Jun 95, p. 75*

★★★★ **FreeStyle 1.01,** Mark of the Unicorn, 617/576-2760, $200. Music sequencer with notation is a good choice for beginners. *Nov 95, p. 70*

★★★ **Insta Software,** Chang Labs, 408/727-8096, $29 per module. No-frills relational databases handle forms and record-keeping for businesses. *Aug 95, p. 77*

★★★★ **Nightingale 2.0,** TAP Music Systems, 206/462-1007, $495. Music-notation software is fast, feature-laden, and easy to learn. *Oct 95, p. 81*

★★★★ **Overture 1.02,** Opcode Systems, 415/856-3333, $495. Easy-to-learn music-notation software has a friendly interface. *Apr 95, p. 75*

★★★/6.9 **Quicken Family Lawyer 6.0b,** Parsons Technology, 319/395-9626, $49. Helps you prepare 61 legal documents. *Feb 96, p. 88*

★★★ **Route 66 1.5,** Route 66 Geographic Information Systems B.V., 415/957-0666, $79.95. Route planner is fast but omits some cities. *May 95, p. 65*

★★★ **StoryBoard Artist 1.5,** PowerProduction Software, 310/937-4411, $499. Storyboard-creation software is useful but expensive. *Oct 95, p. 91*

★★ **Visual Arranger 1.0,** Yamaha Corp. of America, 714/522-9240, $59.95. Song-building software is innovative, but replacing notation with icons doesn't work. *Nov 95, p. 89*

WRITING TOOLS

★★★★ **EndNote Plus 2.0,** Niles & Associates, 510/649-8176, $299. Indispensable bibliography and citation manager is easy to learn and use. *Apr 95, p. 77*

★★★ **FullWrite 2.01,** Akimbo Systems, 617/776-5500, $395. Although its modular architecture is complex, this word processor is worth considering. *Apr 95, p. 69*

★★★ **Inspiration 4.1,** Inspiration Software, 503/245-9011, $195. Writing tool shows the relationships between ideas. *Apr 95, p. 75*

★★★ **Microsoft Word 6.0 (6.0.1),** Microsoft, 206/882-8080, $339. Word processor's many new features may benefit users with fast Macs. *Feb 95, p. 53.* **Editors' Choice** for best high-end word processor. *Mar 95, p. 106*

★★★ **Nisus Writer 4.0,** Nisus Software, 619/481-1477, $495. Word processor excels in specialized areas but has flawed table editor. *Mar 95, p. 53*

★★ **Read-It O.C.R. Pro 5.0,** Olduvai, 305/670-1112, $395. OCR software has nice features but its recognition engine isn't up to par. *Apr 95, p. 79*

★★★★/7.1 **Spelling Coach Professional 4.1,** Deneba Software, 305/596-5644, $69.95. Adds dictionary and thesaurus to almost any application. *Mar 96, p. 80*

★★★ **Three by Five 2.0,** MacToolkit, 310/395-4242, $99. Idea organizer uses the metaphor of index cards on a corkboard. *Aug 95, p. 87*

★★★/6.7 **WordPerfect 3.5,** Novell Business Applications, 801/225-5000, $189. Popular word processor adds HTML editor. *Feb 96, p. 61*

hardware

INPUT DEVICES

★★★★ **ArtPad,** Wacom Technology, 360750-8882, $199. Pressure-sensitive tablet is sheer convenience. *Apr 95, p. 67*

★★★★ **ArtZ II,** Wacom Technology, 360/750-8882, $389.99. Graphics tablet has unique stylus that erases as well as draws. *Dec 95, p. 79*

★★★ **ChoiceStick 1.0.2,** Kernel Productions, 302/456-3026, $69.95. Port lets you attach a pair of joysticks to a Mac. *Sep 95, p. 85*

★★★/6.0 **Desktop GlidePoint,** Alps Electric, 408/432-6000, $99.95. New input device offers adjustable base and cursor-release delay. *Feb 96, p. 68*

★★★★ **DrawingSlate II,** CalComp, 602/948-6540, $395. Responsive digitizing tablet is an excellent choice for artists and illustrators. *Jun 95, p. 83*

★★★ **GlidePoint,** Alps Electric, 408/432-6000, $99. Alternative pointing device lets you position the cursor by moving your finger. *Jul 95, p. 77*

★★ **Jetstick,** CH Products, 619/598-2518, $74.95. Joystick's hardware is fine, but its manual and software are inadequate. *Sep 95, p. 95*

★★★ **MacAlly,** The Mace Group, 213/780-6110, $49. ADB mouse doesn't stand out from the crowd, but is durable and affordable. *Jul 95, p. 75*

★★★ **Mouse-Trak,** Itac Systems, 214/494-3073, $179. Input device is sturdy, but buttons can be hard to reach. *Nov 95, p. 83*

★★★★★/9.6 **PaperPort Vx,** Visioneer, 415/493-9599, $369. Desktop document scanner just gets bettter. *Mar 96, p. 82*

★★ **Point Pad,** Hagiwara Sys-Com, 619/546-9989, $99. Pointing device is compact but can be awkward to use. *Oct 95, p. 87*

★★★★/7.0 **QuePoint II,** MicroQue, 801/263-1883, $79.95. Despite the drawbacks of a touchpad, the QuePoint's excellent software makes it a clear winner. *Feb 96, p. 68*

★★★ **Remote Point,** InterLink Electronics, 805/484-1331, $199. Cordless pointing device is handy, but controlling objects onscreen can be hard. *Apr 95, p. 85*

★★★★ **Thinking Mouse Macintosh ADB,** Kensington Microware, 415/572-2700, $139.95. Mouse has 4 programmable buttons that can automate tasks. *May 95, p. 83*

★★/4.3 **TouchPad,** Touché Technologies, 612/830-1414, $59.95. The TouchPad matches the PowerBook's dark case. *Feb 96, p. 68*

★★★ **Trackball Pro ADB,** CH Products, 619/598-2518, $119.95. Inexpensive trackball falls short in programmability and overall functionality. *Sep 95, p. 91*

MISCELLANEOUS HARDWARE

★★★/6.4 **Chinon ES-3000,** Chinon America, 310/533-0274, $1095. Digital camera zooms in but with the high price doesn't measure up to Kodak Digital

continues

Hot new directory

Don't miss **Macworld Directory**, the **hottest** new section to hit *Macworld*.

Macworld Directory is your one-stop buying resource, putting you in touch with the products and services you're looking for.

You'll find Macworld Directory after the Macworld Shopper section.

Star Ratings

Camera 40. *Mar 96, p. 77*

★★★★ **Colortron,** Light Source Computer Images, 415/925-4200, $1195. Hand-held spectrophotometer helps match on-screen and printed colors. *Jun 95, p. 56*

★★★★ **DayStar PowerPro 601/DayStar Turbo 601,** DayStar Digital, 404/967-2077, PowerPro 601 $1599; Turbo 601 $1499. Impressive 601-based accelerator cards squeeze more performance out of Macs. *Sep 95, p. 67*

★★★ **Kodak Digital Camera 40,** Eastman Kodak, 716/726-7260, $995. Digital camera can use 37mm lens but has some flaws. *Jan 96, p. 59*

★★★ **QuickTake 150,** Apple Computer, 408/996-1010, $739. Digital camera is easy to use and includes close-up lens. *Jan 96, p. 59*

★★★★ **Reno Portable CD-ROM Player,** MediaVision, 510/770-8600, $349. Portable CD-ROM player is lightweight, versatile, and easy to set up. *Jun 95, p. 65*

★★ **Smart Label Printer EZ30,** Seiko Instruments USA, 408/922-5800, $199. Label printer's print quality and speed are disappointing. *Nov 95, p. 72*

★★★ **SoftBoard Model 205,** Microfield Graphics, 503/626-9393, $2795. Electronic whiteboard is expensive but does the job. *Jan 96, p. 71*

MODEMS/NETWORK HARDWARE

★★★ **GeoPort Telecom Adapter Kit,** Apple Computer, 408/996-1010, $129.95. Adapter unlocks the capabilities of Apple's GeoPort modem. *Oct 95, p. 75*

★★★ **Internet Server Solution for WWW,** Apple Computer, 408/996-1010, $2909. Web server is ideally suited for small-business sites. *Oct 95, p. 65*

★★ **Manta 500EN; Starfish Ethernet Access Point,** Digital Ocean, 913/888-3380, Manta $799; Starfish $1850. Wireless-communications package is capable but much too expensive. *Dec 95, p. 77*

★★★★ **OneWorld Combo,** Global Village Communication, 408/523-1000, $1499 without modems; $2099 with modems. Server is the very model of a multiuser modem pool. *Sep 95, p. 78*

★★★★ **OneWorld Internet 1.0, 700 Series,** Global Village Communication, 408/523-1000, $1699 plus monthly fee. Internet gateway offers E-mail and Internet access in an approachable format. *Jun 95, p. 63*

★★★ **Power Class 28.8 Data/Fax Modem,** Motorola, 205/430-8000, $395. Fax modem's hardware is superb, but it's hampered by mediocre software. *Oct 95, p. 89*

★★★★ **TelePort Platinum,** Global Village Communication, 408/523-1000, $279. Reliable fax modem includes call recognition and an answering machine. *Aug 95, p. 81*

PRINTERS

★★★★ **Apple Color StyleWriter 2200,** Apple Computer, 408/996-1010, $419. Portable ink-jet printer is ideal for color output when you're on the road. *Nov 95, p. 66*

★★★★ **Apple Color StyleWriter 2400,** Apple Computer, 408/996-1010, $525. Economical color ink-jet printer offers gorgeous output. *Apr 95, p. 63*

★★★★ **Fargo FotoFun,** Fargo Electronics, 612/941-9470, $399.95. Dye-sublimation printer produces good output at a reasonable price. *Jan 96, p. 61*

★★★/5.4 **HP CopyJet M,** Hewlett-Packard, 800/752-0900, $3649. Color copier and ink-jet printer in a single unit. *Feb 96, p. 77*

★★★★ **HP LaserJet 5MP,** Hewlett-Packard, 800/752-0900, $1299. Laser printer meets the high demands of small businesses and home offices. *Jul 95, p. 58*

★★★★ **LaserWriter 4/600 PS,** Apple Computer, 408/996-1010, $929. Compact printer produces great-looking 600-dpi output. *Dec 95, p. 60*

★★ **Nikon Coolprint,** Nikon Electronic Imaging, 516/547-4355, $2350. Color dye-sublimation printer is fast, but print quality is flawed. *Sep 95, p. 83*

★★★ **Phaser 140,** Tektronix, 503/627-7111, $1695. Ink-jet is a capable color printer for a small workgroup. *Apr 95, p. 63*

★★★ **Pictura 310,** Fargo Electronics, 612/941-9470, $4995; optional Adobe Level 2 PostScript package $795. Printer produces acceptable print quality, but its color-matching capabilities are substandard. *Jul 95, p. 61.* **Editors' Choice** for best low-end dye-sublimation printer. *Jan 96, p. 94*

★★★★ **StyleWriter 1200,** Apple Computer, 408/996-1010, $269. Newest model of Apple's ink-jet printer offers improved print quality. *Sep 95, p. 65*

★★★★ **Stylus Color,** Epson America, 310/782-0770, $699. Color ink-jet's print quality is superb and its price is reasonable. *May 95, p. 58*

★★★ **Typhoon 8,** Dataproducts, 818/887-8000, $3100 (600 dpi, 4MB of RAM); $5199 (1200 dpi, 36MB of RAM). Workgroup printer offers top-notch 1200-dpi output but is a bit pricey. *Dec 95, p. 64*

★★ **Xerox 4510ps,** Xerox, 800/349-3769, $1745. Printer has neither the performance nor the quality to justify its price. *Dec 95, p. 68*

SCANNERS

★★/3.3 **ArtiScan Z1-600,** Tamarack, 714/744-3979, $649. The ArtiScan Z1-600's poor software, manual, and scanning performance make it hard for us to recommend it, even at its low price. So we won't. *Mar 96, p. 118*

★★/3.3 **Color OneScanner,** Apple Computer, 408/996-1010, $859. The Color OneScanner's anemic software bundle and lackluster performance would make it an unexceptional offer even if reasonably priced. *Mar 96, p. 118*

★★/3.1 **CS-300,** Ricoh, 408/954-5326, $599. The CS-300 scanner has one thing going for it: it's dirt cheap. Unfortunately, with performance, software, and documentation this weak, it's still overpriced. *Mar 96, p. 118*

★ **Digital Fotovix IIIS-D,** Tamron Industries, 516/484-8880, $2299. Video slide scanner's image quality doesn't measure up to the competition. *Jan 96, p. 67*

★★★★/7.2 **ES-1200C,** Epson, 310/782-0770, $1299. The ES-1200C scanner has great image quality, respectable speed, and good software, all at a reasonable price. *Mar 96, p. 118.* **Editors' Choice** for best midrange scanner.

★★★ **Fujitsu ScanPartner Jr.,** Fujitsu Computer Products of America, 408/432-6333, $499. Compact scanner with good OCR software is an economical scanning solution. *Jul 95, p. 63*

★★★★/7.1 **Gemini D-16,** Umax, 510/651-4000, $1895–$1995. The Gemini D-16 is unique in being both a 400-dpi and 800-dpi scanner, depending on the scanning area. But for several hundred dollars above its competitors, you'd better need that extra resolution. *Mar 96, p. 118*

★★★★ **HP ScanJet 3c,** Hewlett-Packard, 208/323-2551, $1179. Economical scanner offers a broad tonal range and accurate colors. *Oct 95, p. 79*

★★★/6.1 **HP ScanJet 4c,** Hewlett-Packard, 208/396-2551, $1175. The HP ScanJet 4c is a respectable performer in all categories, though not exceptional. Limited software is its greatest weakness. *Mar 96, p. 118*

★★/3.8 **IX-4015,** Canon, 714/438-3000, $799. Boasts desk-space economy and an exceptional warranty, but its performance and software bundle are mediocre. *Mar 96, p. 118*

★★/4.0 **Paragon 1200SP,** Mustek, 714/250-8855, $899–$1000. The Paragon 1200SP is a disappointment, from its performance to its bare-bones manual. Proof that a 600-dpi, 30-bit scanner for $799 isn't a bargain. *Mar 96, p. 118*

★★ **Pro Imager 4000,** PixelCraft, 510/562-2480, $2995. Scanner delivers excellent highlight detail but produces noise in shadow areas. *Jun 95, p. 59*

★★★★ **Pro Imager 8000,** PixelCraft, 510/562-2480, $12,995. Demanding prepress users will like this scanner. *Jun 95, p. 59*

★★★ **Reli 4830T,** Relisys, 408/945-9000, $1699. If you can live with slow performance, this scanner is a bargain. *Jun 95, p. 71*

★★★/5.0 **ScanMaker IIsp,** Microtek, 310/297-5000, $499–$699 (street). The ScanMaker IIsp is a shaky performer at best, especially when it comes to capturing highlight detail (it doesn't), but it's an option for the bargain hunter. *Mar 96, p. 118*

★★★/5.8 **ScanTouch AX-1200,** Nikon, 516/547-4355, $1720. The ScanTouch AX-1200 is a solid performer, but at this price it should be closer to stunning. *Mar 96, p. 118*

★★★/5.6 **Silverscanner III,** La Cie, 503/520-9000, $1499–$1699. The Silverscanner III is a good performer in many respects, but its poor color accuracy and high price place it behind the Epson ES-1200C on which it's based. *Mar 96, p. 118*

★★★★ **SprintScan 35,** Polaroid, 617/386-2000, $2495. Compact, efficient, cost-effective scanner transfers slides or negatives to a Mac. *Jun 95, p. 79*

★★★/5.9 **StudioScan IIsi,** Agfa, 508/658-5600, $900 (street). The StudioScan IIsi gets good performance from its 30-bit, 400-dpi engine. Agfa's software is powerful and flexible but could be easier to use. *Mar 96, p. 118*

★★★ **Vista-S8,** Umax Technologies, 510/651-8883, $995 (LE+); $1095 (Pro+). 24-bit color flatbed scanner has a lot of useful features for its low price. *Jul 95, p. 67*

SPEAKERS

★★★★/8.8 **Acoustimass,** Bose, 508/879-7330, $699. Full, rich, natural sound; treble slightly rolled off but clean. *Mar 96, p. 157.* **Editors' Choice** for best high-end three-piece speakers.

★★★★/7.1 **ACS 52,** Altec Lansing, 717/296-2818, $128. Clean, reasonably solid presentation; crisp highs; powerful bass for such a small design. *Mar 96, p. 157*

★★★★/7.1 **AMX-16,** Radio Shack, 817/390-3300, $120 (street). Clean, reasonably crisp, slightly bright, decent bass, somewhat lacking in low-end heft. *Mar 96, p. 157*

★★★/6.8 **AppleDesign Powered Speakers,** Apple

Computer, 408/996-1010, $179. Clean, reasonably solid presentation. Bass is good but doesn't shake the foundation. *Mar 96, p. 157*

★★/4.9 **AV270 Powered Speakers,** Advent, 708/317-3700, $179. Clean and smooth. Somewhat tinny quality to midrange and highs. *Mar 96, p. 157*

★★★/6.2 **AV622 Powered Speakers,** Advent, 708/317-3700, $299. Clean and smooth, with somewhat lightweight character. Slight treble emphasis. Bass has reasonable weight and impact. *Mar 96, p. 157*

★ **EAB401P Speakers,** Panasonic Communications & Systems, 800/742-8086, $99. Small, inexpensive speakers provide less-than-state-of-the-art performance. *Apr 95, p. 58*

★★ **EAB701P Speakers,** Panasonic Communications & Systems, 800/742-8086, $249. The sound of these speakers is thin and slightly harsh. *Apr 95, p. 58*

★★★/5.2 **J-688AV,** Jazz, 818/336-2689, $149. Reasonably smooth sound, noticeably rolled-off high end, slightly harsh midrange becomes a bit fatiguing over a long listening session. *Mar 96, p. 157*

★★/4.7 **J-902,** Jazz, 818/336-2689, $150. Clear reproduction, with moderate bass emphasis and overemphasized treble. Generally thin sonic character because of the high-frequency emphasis. *Mar 96, p. 157*

★★★/5.8 **JPS 45,** Jensen, 708/317-3700, $149. Clean, reasonably crisp, slightly bright; an almost sandpapery affect on cymbals; adequate bass, but somewhat lacking in low-end heft. *Mar 96, p. 157*

★★/3.5 **LCS-3210,** Labtec, 360/896-2000, $119 (street). Decent, slightly boomy bass, harsh midrange, rolled-off treble. Sound gets harsher when played at loud volumes. *Mar 96, p. 157*

★★★/6.2 **MA-12CP,** Roland, 213/685-5141, $319. Relatively warm, well-balanced sound; slightly lightweight bass. Tends to sound harsh when played at normal volume levels. *Mar 96, p. 157*

★★★★/7.8 **MediaMate,** Bose, 508/879-7330, $339. Full, warm, rich, natural sound. Cymbals had considerable clarity and detail and sounded realistic. Amazingly robust for such a small speaker. *Mar 96, p. 157.* **Editors' Choice** for best desktop speakers.

★★★/6.6 **MLi-95,** Midi Land, 909/592-1168, $120. Surprisingly good sound for the money. Clean, reasonably clear; fine musical details are a wee bit indistinct; has good voice reproduction, adequate bass. Smooth highs, accurate presentation. *Mar 96, p. 157*

★★★★/7.5 **MMS 557,** Audio-Technica, 216/686-2600, $150. Relatively clean, slightly bright, crisp sound. Surprisingly robust bass for a small box. *Mar 96, p. 157*

★★ **NEC AudioTower,** NEC Technologies, 708/860-9500, $99. Speaker system's sound quality is nothing to shout about. *May 95, p. 81*

★★★★/7.9 **SoundWorks,** Cambridge SoundWorks, 617/332-5936, $220. Clean, well-balanced sound, slight upper midrange emphasis, good bass. *Mar 96, p. 157.* **Editors' Choice** for best low-end three-piece speakers.

★★★/5.7 **SurroundSound ACS 500,** Altec Lansing, 717/296-2818, $450. Robust sound, slightly smeared highs, and slight harshness when played at loud volume. Bass is powerful, but a bit boomy. *Mar 96, p. 157*

★★/3.7 **SW150,** Koss, 414/964-5000, $180. Weak bass, harsh midrange, rolled-off treble. No saving graces. *Mar 96, p. 157*

★★★/6.4 **TC1490-7SUB,** Multimedia Labs, 410/429-4300, $249. Clean sound and thin balance; adjusting subwoofer output just makes bass boom, but bass is always lightweight. *Mar 96, p. 157*

★★★ **Vivid 3D Pro,** NuReality, 714/442-1080, $149.95. Sound-enhancement system produces 3-D sound from a pair of speakers. *Aug 95, p. 87*

★★★/6.4 **YST-SS1010,** Yamaha Corp. of America, 714/522-9240, $350. Relatively warm, well-balanced sound, slightly rolled-off treble with slight smearing effect on cymbals, average bass impact with subwoofer. Tends to sound harsh when played at loud volume levels. *Mar 96, p. 157*

SYSTEMS/STORAGE

★★★ **Envoy Wireless Communicator,** Motorola, 800/894-7353, $1000 to $1500. Magic Cap–based PDA was our reviewers' first choice for E-mail. *Aug 95, p. 62*

★★★★ **EZ135,** SyQuest Technology, 510/226-4000, $249. Removable drive is fast and comes with a fine selection of bundled software. *Dec 95, p. 58*

★★★ **Marco Wireless Communicator,** Motorola, 800/894-7353, $900 to $1400. Newton OS–based PDA includes a radio modem. *Aug 95, p. 62*

★★★ **Master CD Pro,** MicroNet Technology, 714/453-6000, $4995. Recordable CD-ROM drive is a good tool for professional CD production. *Aug 95, p. 83*

★★★★/7.5 **MessagePad 120 with Newton OS 2.0,** Apple Computer, 408/996-1010, $699. If the first Newton had been this good, you'd already have one. *Mar 96, p. 57*

★★★/5.6 **Performa 5125CD,** Apple Computer, 408/996-1010, $2300. The all-in-one design is appealing, but the performance is just so-so. *Feb 96, p. 96*

★★★★/7.1 **Power 100,** Power Computing, 512/258-1350, $1699. Powerful and inexpensive, the Power 100 comes bundled with all the extras you'd want. *Feb 96, p. 96.* **Editors' Choice** for best home-and-small-office Mac.

★★★★/7.4 **Power 120,** Power Computing, 512/258-1350, $1999 . Like its Power 100 sibling, this system offers strong performance at a good price. *Feb 96, p. 96*

★★★/5.8 **PowerBook 5300,** Apple Computer, 408/996-1010, $2300. A gray-scale screen and middling performance make this just an acceptable notebook. *Feb 96, p. 96*

★★★/5.9 **PowerBook 5300c,** Apple Computer, 408/996-1010, $4500. A great color screen and strong expandibility balance with so-so performance. *Feb 96, p. 58.* **Editors' Choice** for best portable Mac. *Feb 96, p. 96*

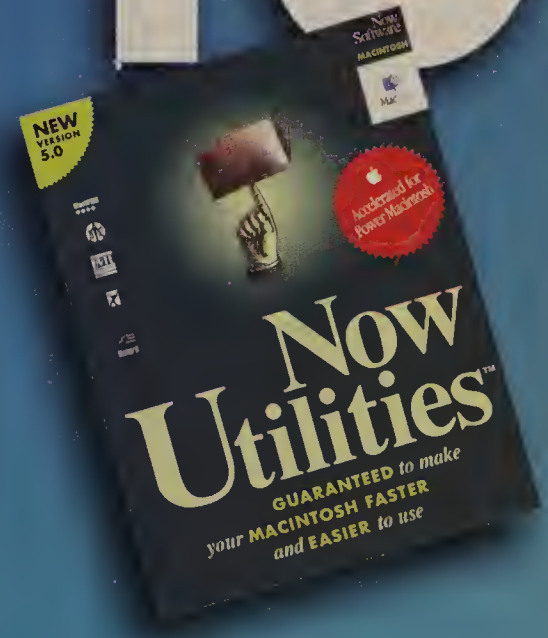
★★★/5.9 **PowerBook 5300cs,** Apple Computer, 408/996-1010, $3600. Good expansion, so-so speed, and a decent color screen make this fine for short-term use. *Feb 96, p. 96*

★★★/6.5 **Power Macintosh 7200/75,** Apple Computer, 408/996-1010, $1600 . A dumbed-down version of the 7500, this system offers just the basics. *Feb 96, p. 96*

★★★★/7.8 **Power Macintosh 7500/100,** Apple Computer, 408/996-1010, $3100. Powerful and relatively inexpensive, the Power Mac 7500/100 shines in its easy-to-upgrade design. *Feb 96, p. 96.* **Editors' Choice** for best business-and-professional Macintosh.

continues

How to make 7.5 a 10



"Now Utilities is the best overall collection of utilities you can buy for your Mac."
– *MacUser, August 1995*

To find out how to make System 7.5 even faster and easier to use, call:
1-800-237-2078
Circle 38 on reader service card

Now Software
It's about time.

PowerCADD™

Power Macintosh version of PowerDraw

300% faster than ever

Accelerated for Power Macintosh

File Size	PowerCADD 2.0	PowerDraw 6.0	PowerDraw 5.0
	(SCREEN REDRAW TIMES - SECONDS)*		
1.5 MB	2.27	8.5	28.85
6.4 MB	5.49	18.12	38.25
1.0 MB	1.68	3.87	7.87

*Test conducted on a Power Macintosh 8100/100AV for PowerCADD 2.0 and a Macintosh Quadra 630 for PowerDraw versions.

MACWORLD MW ★★★★

Macworld October 1995

"...PowerCADD's greatest benefit is speed..."

"PowerCADD does the best job of harnessing the Power Mac's capabilities I've seen."

MacUser October 1995

"...PowerCADD's programmability and extensibility may make PowerCADD a better choice than high-end CAD programs."

score card MacWEEK ◆◆◆◆

MacWEEK July 10, 1995

"...a 1.4 MB (PowerCADD) file on the Power Mac updated more than two times faster on the Power Macintosh (redraw speed of five seconds)."

InfoWorld July 24, 1995

"PowerCADD 2.0 boasts faster redraw times, faster editing and processing speeds, improved layer controls, enhanced editing commands, and a redesigned interface."

ENGINEERED SOFTWARE™

Call 910-299-4843
Fax 910-852-2067
In Canada 204-453-8111

Circle 12 on reader service card

Star Ratings

★★★ **Power Macintosh 8100/110,** Apple Computer, 408/996-1010, $6379. Power Mac offers increased speed and improved NuBus circuitry. *Mar 95, p. 50*

★★★★/7.7 **Power Macintosh 8500/120,** Apple Computer, 408/996-1010, $4200. The 8500's 604 CPU and bundled cache give it good performance. *Feb 96, p. 96.* Editors' Choice for best publishing and graphics Mac and best media-authoring Mac.

★★★ **Power Macintosh 9500/132,** Apple Computer, 408/996-1010, $5799. Power Macintosh offers speed, expansion, and lots of memory. *Oct 95, p. 60*

★★★★/7.6 **PowerWave 604/120,** Power Computing, 512/258-1350, $3199. Power Computing has made the 604 CPU available at 601-based systems' prices. *Feb 96, p. 54.* Editors' Choice for best business-and-professional Mac. *Feb 96, p. 96*

★★★★/7.6 **PowerWave 604/132,** Power Computing, 512/258-1350, $3699 (256K cache card included). This fast, sensibly priced system, which comes bundled with bonus software, is a great value. *Feb 96, p. 54*

★★★★/7.7 **PowerWave 604/150,** Power Computing, 512/258-1350, $4499 (512K cache card included). The fastest Mac currently available, the price is not quite as attractive as for other PowerWave models. *Feb 96, p. 54*

★★ **RCD-1000,** Pinnacle Micro, 714/727-3300, $1695. CD-Recordable drive is easy to use but too unreliable for day-to-day backup. *Jun 95, p. 81*

★★★/5.1 **SCSI PowerPlug II,** Hot Wire Technology, 203/761-0651, $119.99. A fast way to swap SCSI devices. *Feb 96, p. 86*

★★★ **SledgeHammer8000FT,** FWB, 415/325-4392, $23,599. Level 5 RAID array provides constant access to your stored information. *Sep 95, p. 59*

★★★ **Sony Magic Link,** Sony, 800/571-7669, $699.95. Using this PDA is a breeze, but it lacks applications. *Aug 95, p. 62*

★★★/5.8 **System 100,** Radius, 408/541-6100, $10,500. Radius bundles its mediocre digital-video cards on a relabeled Power Mac 8100—that's no wise investment. *Feb 96, p. 96*

★★★★ **Zip Drive,** Iomega, 801/778-1000, $199.95; 100MB cartridge $19.95. External drive combines speedy performance, convenience, and economy. *Jul 95, p. 59*

VIDEO/DISPLAY

★★/4.2 **AlphaScan GLX,** Sampo Technology, 770/449-6220, $1495. Low price fails to outweigh poor image quality. *Feb 96, p. 165*

★★★/5.5 **Diamond Pro 21TX,** Mitsubishi Electronics America, 714/220-2500, $2199. Washed-out colors hold back an otherwise strong contender. *Feb 96, p. 165*

★★★ **EAsycolor 24/1360,** EA Research, 510/867-0967, $1699. Video board offers Photoshop CMYK acceleration and multisync monitor support. *Aug 95, p. 64*

★★★ **Encoder Pro,** P2 Systems, 206/525-2081, $259. Inexpensive Mac-to-TV adapter is a good value. *Jan 96, p. 69*

★★/4.4 **FlexScan F2 21,** Nanao, 310/325-5202, $2299. Blurry, dim image and too high a price. *Feb 96, p. 165*

★★/4.8 **Multigraph 445X,** Nokia Display Products, 415/943-4071, $2775. Adequate image quality, but at too high a price. *Feb 96, p. 165*

★★★/6.2 **Multiple Scan 20 Display,** Apple Computer, 408/996-1010, $2149. Not as vibrant as it could be, but good value. *Feb 96, p. 165*

★★★/5.9 **MultiscanTC,** Sony, 408/432-0190, $3950. Special color-adjustment tools don't overcome mediocre performance. *Feb 96, p. 165*

★★★★/7.3 **MultiSync XE21,** NEC Technologies, 508/264-8000, $1899. Rich, bright images complemented by excellent controls. *Feb 96, p. 165*

★★★/5.8 **MultiView 21,** Radius, 408/541-5700, $2149. Seductively rich colors, but too soft a focus. *Feb 96, p. 165*

★★★ **PaintBoard Prism GT,** RasterOps, 408/562-4200, $999. Video board offers good QuickDraw acceleration but no Photoshop acceleration. *Aug 95, p. 64*

★★★/5.0 **PanaSync/Pro C2192P,** Panasonic Communications & Systems, 201/348-7000, $1999. Reasonable price fails to overcome weak image quality. *Feb 96, p. 165*

★★★/6.6 **Pivot 1700,** Portrait Display Labs, 510/227-2700, $1099. Good image quality but doesn't automatically switch views when rotated. *Mar 96, p. 70*

★★★★ **Presenter TView,** TView, 503/643-1662, $449. Reliable Mac-to-TV adapter produces an excellent picture. *Jan 96, p. 69*

★★★★/8.6 **PressView 21 SR,** Radius, 408/541-6100, $3,999. The best professional-quality display gets better. *Feb 96, p. 62*

★★★ **QA-1500,** Sharp Electronics, 201/529-8731, $5795. LCD panel's display is crisp, but placing a presentation on its PC Card is cumbersome. *May 95, p. 69*

★★ **Radius Telecast,** Radius, 408/541-6100, $9995. QuickTime-based video editor has potential, but software is not yet mature. *Jan 96, p. 65*

★★★★/7.3 **RasterOps SuperScan Mc 21,** NSA/Hitachi, 617/461-8300, $2299. Top performance plus sensible, intuitive controls create a winning combination. *Feb 96, p. 165.* Editors' Choice for best two-page monitor.

★★★★ **SpigotPower AV,** Radius, 408/541-6100, $999. Make full-screen movies with this first-rate video-compression board. *Jun 95, p. 67.* Editors' Choice for best digital-video card. *Aug 95, p. 112*

★★/4.1 **SyncMaster 20GLs,** Samsung Electronics America, 201/691-6200, $1599. Glare-catching, image-distorting tube and weak controls. *Feb 96, p. 165*

★★★★ **Targa 2000 1.2,** Truevision, 408/562-4200, $5495. Video board offers good picture quality and fully synced 16-bit audio. *Dec 95, p. 71*

★★★★ **Thunder IV GX 1360,** Radius, 408/541-6100, $2999. Video board provides impressive QuickDraw and Photoshop acceleration. *Aug 95, p. 64*

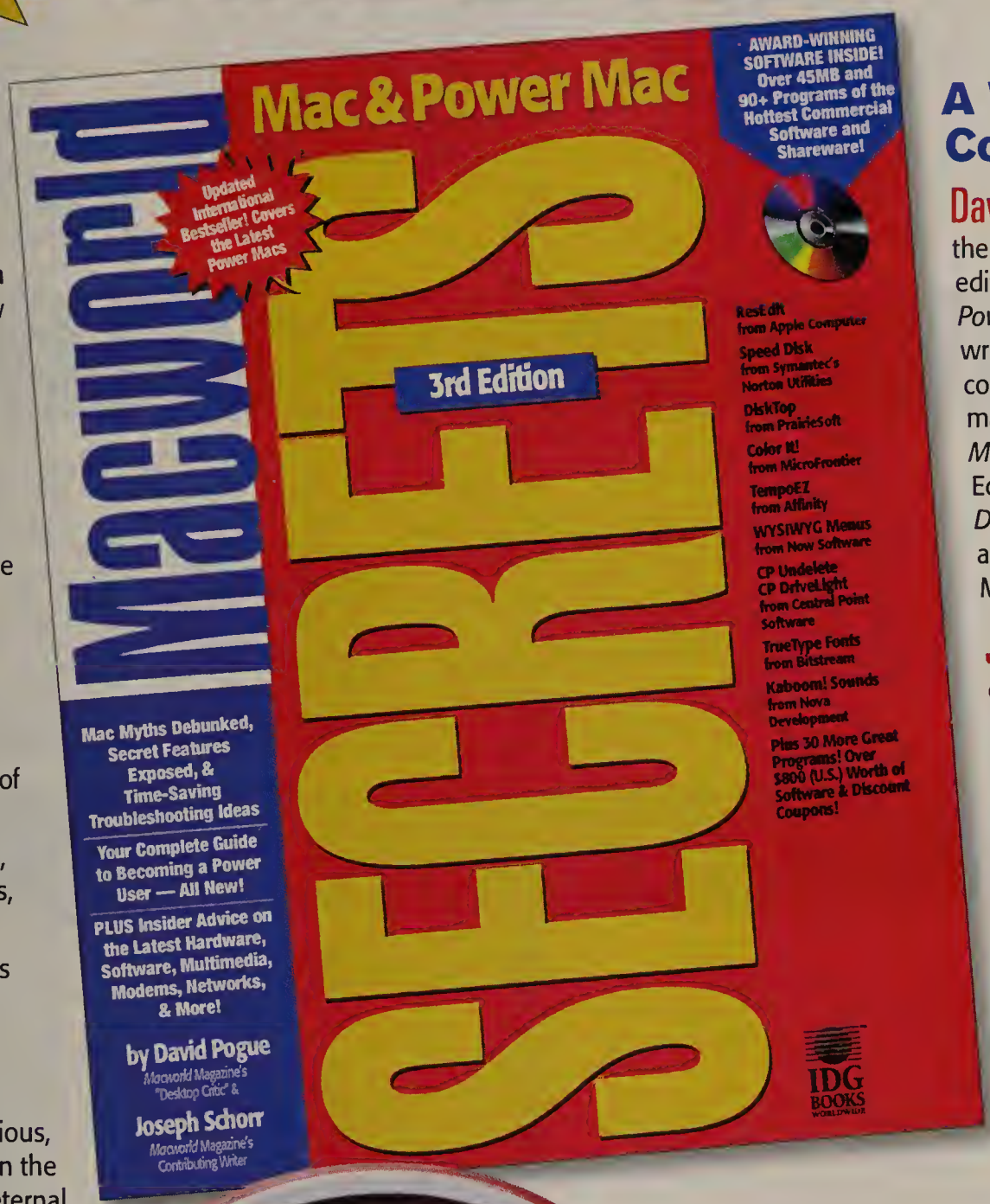
★★★ **VideoDirector 1.5,** Gold Disk, 408/782-0200, $199.95. Low-end video-editing system logs, edits, and organizes videotape footage. *Jun 95, p. 75*

★★★/5.8 **ViewSonic 21PS,** ViewSonic, 909/869-7976, $2095. Bright, vibrant, though not particularly sharp image. *Feb 96, p. 165*

★★★/5.3 **VisionMaster Pro 21,** Iiyama North America, 215/957-6543, $1995. Good image quality, but confusing controls. *Feb 96, p. 165* m

Pogue & Schorr ARE BACK And Better Than Ever!

INTERNATIONAL BESTSELLER
Over 300,000 Copies in Print!



The 3rd time is the charm

for this dynamic and bestselling expert author duo as they combine their Macintosh expertise and know-how to bring you the latest undocumented tricks, productivity shortcuts, and secrets that Macintosh users of all levels need to know.

- All new coverage on the Internet and the Web, PCI Power Macs, Zip disks, System 7.5.3, OpenDoc, DIMMs, and more!
- Special sneak preview of Copland!
- Insider tips on all Macs, Performas, Power Macs, and PowerBooks!
- Check out your model's expansion potential!
- Troubleshoot almost anything!

Also, check out the hilarious, incisive debates between the authors that tackle the eternal questions:

- Leave the Mac on at night?...
- Upgrade to Word 6?...
- Performa or not?...
- And more...

AWARD-WINNING SOFTWARE INSIDE!
Over 45MB and 90+ programs of the Hottest Commercial Software and Shareware!

"The best Mac book of the year."
–Boston Computer Society

"...this book kept me up nights, looking for more great secrets."
–*The Washington Post*

"Pogue & Schorr's casual, atypical, yet efficient writing style typifies the whole Mac mentality. Others, who write about Macs in the dry, manual-like monotone, just miss the point."
–Randy Fippinger, New York, NY

A Winning Combination!

David Pogue co-authored the bestselling previous editions of *Macworld® Mac® & Power Mac™ SECRETS,®* and writes the Desktop Critic column for *Macworld* magazine. He also wrote *Macs® for Dummies,®* 3rd Edition, *MORE Macs® for Dummies,®* and *Hard Drive,* a thriller about the Macintosh.

Joseph Schorr co-authored the 1st, 2nd, and 3rd editions of *Macworld Mac and Power Mac SECRETS.* He is a contributing editor and has recently launched the new SECRETS column in *Macworld* magazine—check it out each month.

ISBN: 1-56884-791-2
$39.99 USA/
$54.99 Canada

For more information on other Mac bestsellers from IDG Books Worldwide, or to order a free catalog, call:

1(800) 762-2974 USA
1(800) 667-1115 Canada

Macworld® PRESS

IDG BOOKS WORLDWIDE

IDG Books Worldwide, Inc.
919 E. Hillsdale Blvd., Ste. 400
Foster City, CA 94404
Tel (415) 655-3000
Fax (415) 655-3299
http://www.idgbooks.com/
MW4/96

Mac and Macintosh are registered trademarks, and Power Mac is a trademark of Apple Computer. Macworld is a registered trademark of International Data Group, Inc. — SECRETS is a registered trademark, and the IDG Books Worldwide logos are trademarks under exclusive license to IDG Books Worldwide, Inc. from International Data Group, Inc.

RUN, don't walk, to your local book or computer store!

Macworld Web Watch

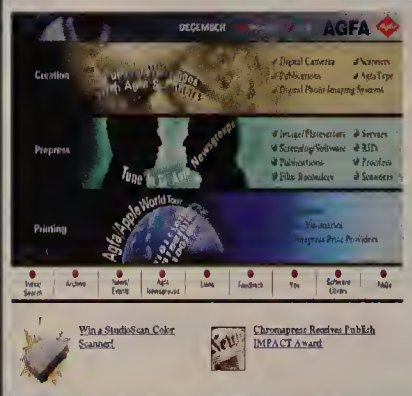
YOUR MARKET RESOURCE TO THE WORLD WIDE WEB

Adobe Systems

Adobe ™ hardware and software products and technologies enable users to create, view, communicate and print electronic documents across platforms. The company licenses industry-standard Adobe PostScript™ software to over 40 leading computer and printer manufacturers worldwide. Retail products include Adobe Acrobat™, Adobe Illustrator™, Adobe Photoshop™, Adobe PageMaker™ and the Adobe Type Library.

http://www.adobe.com/

Agfa



The Agfa Web site features debates on topical issues, interviews with industry experts, and user forums. Designers, desktop publishers, and other graphics professionals will find the latest information on Agfa scanners, digital cameras, color management software, type, proofing systems, RIPs, servers, screening technologies, imagesetters, digital printing systems and more.

http://www.agfahome.com/

Apple Computer, Inc.

If you want to learn more about the most innovative computer products in the world, start here: the Apple Computer Home Page. See what the future of computing might look like. See what you can get your hands on today. Topics, perspectives and stories change frequently, so visit today, visit often.

http://www.apple.com

CDG Systems/The Technology Cente

CDG Systems supplies computer solutions to graphic artists, publishers, multimedia producers and MIS managers all over the world. Our Sales Consultants are not just glorified order-takers; they truly know their fields, and can guide you to the best solutions. Browse our web site for a small sampling of our more than 28,000 Macintosh and PC products. Then order our catalog by E-mail at cdgsys@peganet.com, or by phone at (800) 741-6227. Let us find a solution for you.

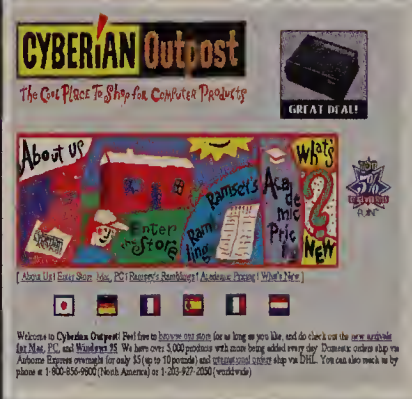
http://www.peganet.com/cdgsys/cdg.htm

CD-Now

CD-Now is the Web's most popular music retailer and information source. We offer more than 165,000 domestic and imported CDs, cassettes, T-shirts, videos, and laserdiscs. No other music store comes close to our selection, customer service, and information resources. Point your Web browser to CDnow and experience the biggest and best record store in the world.

http://cdnow.com/macworld

Cyberian Outpost



Cyberian Outpost is the definitive Web computer store, offering software, CPUs, accessories and peripherals at great prices with overnight delivery. We have information on thousands of Mac products - including reviews, screenshots and product demos. Our What's New page gets updated daily. International orders are welcomed.

http://www.cybout.com/mw.html

DirectWare

DirectWare is your source for the computer industry's best computer hardware and software products at everyday low prices. DirectWare's web page allow users to browse the catalog, view weekly specials and contests, leave email messages, order a personal copy of the current catalog and download free Windows and Mac software. The key word search feature allows users to find the product they're looking for. 1-800-490-WARE. The #1 source for electronic commerce.

http://www.directware.com

IDG Books Worldwide, Inc.

- "Free & Downloadable" section
- Helpful "Tip of the Day"
- An online bookshelf worth checking out!

IDG Books Worldwide publishes high-quality computer and business books that bring extra value and skill-building instruction to readers of all levels. IDG Books has a higher ratio of bestsellers to books published than any other technology publisher. Some of our popular series include ...*For Dummies*® books and Macworld® Press titles.

http://www.idgbooks.com

Web Watch

Macworld

YOUR MARKET RESOURCE TO THE WORLD WIDE WEB

Image Club Graphics

Visit Image Club's site for all your graphic design needs and more. You'll find their fresh collection of fonts, clip art and stock photos are versatile, well designed and lots of fun to use. With an easy to follow tips & tricks section and a constant supply of new exclusive and brand name products, you'll have access to all the tools you need to create innovative design.

http://www.adobe.com/imageclub/

Impossible Software

Learn about the latest in Macintosh font management tools, tips and techniques by exploring the features of TypeTamer™ on Impossible Software's Web Pages. You will find answers to many font related FAQs, be able to download a trial version of TypeTamer™ and communicate with Impossible Software's Support Staff. See you on the web! 1-800-470-4801.

http://www.impossible.com/

MacLinq

Utopia for Macs on the Web! Thousands of links to Mac resources, including: Shopping, FTP software downloading, Magazines & E'zines, Books & Reference, Hardware & Software, Services, User Groups, free classifieds, and software reviews! Need to find a Mac-related company? Our vendor Website Directory lists over 270 companies! Enter to win The Ultimate System: a Radius clone with thousands of dollars in peripherals and software. Mac companies: save time and money, let us create your Web site!

http://www.maclinq.com/

Macworld Online

- A year's worth of Macworld in searchable format;
- Lively message boards full of tips, advice, and commentary from editors, authors and readers;
- A first-rate software library stocked with the best in Macintosh-related software and freeware;
- NetSmart, a glossary and compendium of Web-related tutorials, hints, and links;
- TechnoCultural Cafe, a nexus for the more creative side of digital living.

http://www.macworld.com

NetJet

Exciting, compelling and breathtaking are just some of the words people use to rave about our clients' web sites.

NetJet Communications builds web sites for today's innovative companies. We use the latest technologies, such as commerce servers and Hot Java, to help our clients conduct business on the Internet in the Net Age.

For more information, visit our Web site or call us at (415) 626-4800.

http://www.netjet.com/

OnBase Technology

DragNet is the Ultimate Net Address Book for managing all your Internet bookmarks. DragNet is designed to extend the functionality of traditional bookmark managers, creating an Internet database manager & adddress book that works in tandem with any web browser. Download your FREE trial copy today. Email: onbase@deltanet.com. 1-714-830-5682.

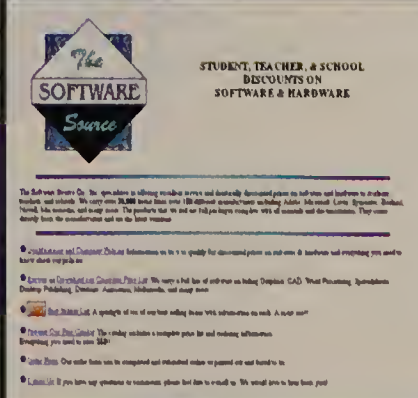
http://www.onbasetech.com

Portrait Display Labs, Inc.

If you're in the market for a new display, the Monitor Guide from Portrait Display Labs, makers of the Pivot 1700, is a great place to start. You'll find lots of information about getting the most out of your monitor, about which displays are the best for the applications you most frequently use, as well as what ergonomics and safety features to look for when making your purchase. And, you can even win a 28.8 modem in our monthly drawing!

http://www.portrait.com

The Software Source

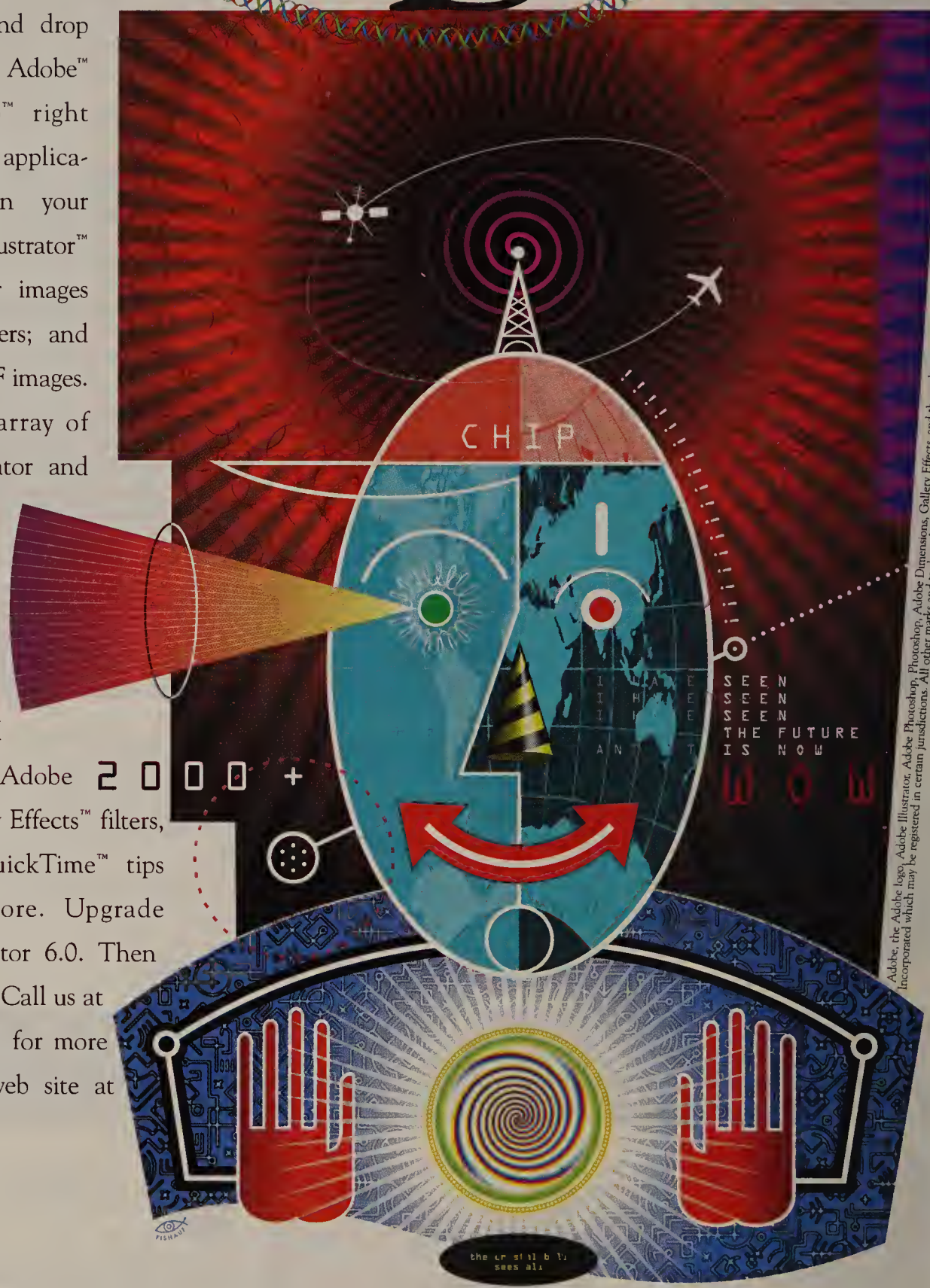


The Software Source Co., Inc. is a leading retailer of software and hardware on the Web. We offer discounts to students, teachers and schools on products by all major manufacturers. The discounts range from 30% - 80% off retail prices. Visit our site today and receive our free catalogue or to browse our complete product listing. You can even order online! 1-800-289-3275.

http://iaswww.com/source.html

WONDER BOY

Your ability to perform wonders just got a boost. Now the leading illustration and page design program for Macintosh® offers the highest quality TIFF and other file format support of any illustration program. And boy! Look at these killer features. You can drag and drop images from Adobe™ Photoshop™ right into the application; turn your Adobe Illustrator™ artwork into raster images and apply Photoshop™ filters; and edit and colorize 1 bit TIFF images. And you can run a full array of plug-ins for Adobe Illustrator and Photoshop. Now you can even drag and drop the logo you've created into Adobe PageMill™ to start building your web site today. You also get a CD-ROM with 300 Type 1 fonts, Adobe Dimensions™ 2.0, 48 Gallery Effects™ filters, Adobe Screen Ready™, QuickTime™ tips and techniques, and more. Upgrade to the new Adobe Illustrator 6.0. Then turn your own genius loose. Call us at 1-800-521-1976, Ext. L1271 for more information or visit our web site at http://www.adobe.com/.



Adobe, the Adobe logo, Adobe Illustrator, Adobe Photoshop, Photoshop, Adobe Dimensions, Gallery Effects, and the tagline, "If you can dream it, you can do it" are trademarks of Adobe Systems Incorporated which may be registered in certain jurisdictions. All other marks and trademarks are the property of their respective companies. ©1996 Adobe Systems Incorporated. All rights reserved.

Adobe™

If you can *dream* it, you can *do* it.™

Circle 252 on reader service card

Macworld

Advertiser Index

Say you saw it in Macworld. To purchase products advertised in this issue call the phone numbers below or use the reader service number for our FastFacts Product Information Card located after the product index.

Page No.	Advertiser	Reader Srvc. No.	Phone
79	Adaptec	—	800/804-8896
68	Agfa	158	800/685-4271
14	Agio	—	800/688-2446
176,177	Alliance Peripheral Systems	62	800/874-1428
119	Alsoft	140	800/257-6381
100,101	American Power Conversion	72	800/788-2208
8	Anthro	—	800/325-3841
30,31	Apple Computer—Internet Web Servers	—	—
199	BottomLine Distribution/DGR Technologies	63	800/990-5792
11	Caere Corporation	69	800/535-SCAN
132	Casady and Greene	58	800/359-4920
85	Claris	—	—
178,179	ClubMac	96	800/CLUBMAC
193-195	Computer Discount Warehouse	2	800/861-4CDW
78	Connectix - RAM Doubler	192	800/839-3629
80	Connectix - Speed Doubler	193	800/839-3629
82	Connectix - QuickCAM	191	800/839-3629
34	Corel Corporation	78	800/836-3729
202,203	CRA Systems Inc.	20	800/375-9000
37	Dantz Development	26	800/225-4880
124	DayStar Digital	7	800/532-7853
22	Deneba Software	—	800/733-6322
23	Deneba Software	57	800/733-6322
198	DigiCore	269	800/858-4622
206,207	DirectWare	88	800/490-WARE
73	Eastman Kodak	45	800/344-0006
251	Educorp	157	800/843-9497
166	Engineered Software	12	910/299-4843
24,25	Epson America	—	800/BUY-EPSON
182,183	Express Direct	81	800/765-0020
18	Fractal Design	—	800/647-7443
26	Graphsoft	46	410/290-5114
76	GT Interactive Software	184	212/726-6500
43	Hewlett Packard—DesignJet line	11	800/354-7622
120	Hitachi NSA	74	800/441-4832
167	IDG Books Worldwide	—	800/762-2974
110	InfoSeek	47	—
158	Inspiration Software	—	800/877-4292
15	Intuit - Quick Books	—	800/781-6999
175	J&R Computerworld	282	800/221-8180
157	Kaetron Software	67	800/938-8900
BC	Kensington Microware Ltd.	1	800/535-4242
83	Kingston Technology	201	800/435-0677
209	L.A.Trade	—	800/433-3726
185-187	LaCie	52	800/999-1353
136	LaserMaster	103	800/477-7714
84	Lind/Pilot Technologies	10	800/897-8996
74	Lotus Development Co	14	—
9	Luckman Interactive	65	800/711-2676
204,205	Mac Bargains	70	800/619-9091
211	Mac Preferred	76	—
188,189	Mac Zone	71	800/436-0606
123	MacAcademy	106	800/527-1914
210	MacAcademy	107	800/527-1914
180,181	MacConnection	—	800/800-3333
196,197	MacMall	131	800/222-2808
212	MacMarket	258	800/223-4622
116,117	Macromedia - FreeHand	244	800/326-2128
44	MacTemps	60	800/MACTEMPS
200,201	MacWarehouse	150	800/255-6227
114	Macworld Active Buyer Days	—	—
156	Macworld Expo	—	617/361-8000
208	MegaHaus	245	800/786-1184
20	MetaTools, Inc.	4	805/566-6200
29	MetaTools, Inc.	5	805/566-6200
28	Microfield Graphics	48	800/334-4922
IFC,1	MicroSoft - Office	—	800/531-6748
16,17	Microsoft - Word	—	800/531-6748
IBC	NEC Technologies	16	800/NEC-INFO
165	Now Software	38	800/274-2899
12	Orange Micro	33	714/779-2772
21	Pinnacle Micro	115	800/553-7070
32	Polaroid	295	800/816-2611
36	Portrait Display Lab	89	800/858-7744
2,3	Power Computing Corporation	161	800/410-7693
184	ProDirect	135	800/524-9952
99	QMS	288	800/392-7559
14	Reply Corporation	—	800/801-6898
81	Seiko Instruments	93	800/888-0817
49	Specular International	41	800/433-7732
35	SPSS INC.	85	800/457-8287
65	Supra/Diamond Multiledia	83	800/967-8772
71	Tektronix	143	800/835-6100
122	usrEZ Software	36	800/482-4MAC
6	ViewSonic	59	800/888-8583
13	Visioneer	18	800/787-7007
10	VST Power Systems	73	508/287-4600
50	Wacom Technology Corporation	146	—
190	Westwood Computers	101	800/761-1999
118	World Software	145	800/225-9299
113	Xante Corporation	112	800/926-8839
10	Xaos Tools	13	800/BUY-XAOS
53	Xerox Corporation	100	800/ASK-XEROX

SUPPLEMENTAL NEWTON SECTION

N5	AllPen Software, Inc.	21	—
N7	Apple Computer, Inc.	—	—
N13	Apple Computer, Inc.	23	—
N11	Education Research Labs, Inc.	27	—
N15	HealthCare Communications, Inc.	29	—
N14	LandWare, Inc.	30	—
N18	Now Software	31	—
N15	PelicanWare, Inc.	28	—
N2	Pen Ultimate	32	—
N17	Physix, Inc.	34	—
N17	Pinehill Softworks	35	—
N16	Shana Corporation	37	—
N9	Wright Strategies	39	—

Macworld Product Index

A quick and easy product index from Macworld. Simply use this index to find the page or advertiser of the products which interest you. Then, use the reader service number for our FastFacts Product Information Card located on the following page.

Page No.	Advertiser	Reader Srvc. No.
SOFTWARE		
BUSINESS		
158	Inspiration Software	—
15	Intuit - Quick Books	—
157	Kaetron Software	67
IFC,1	MicroSoft - Office	—
16,17	Microsoft - Word	—
165	Now Software	38
CAD/CAM		
166	Engineered Software	12
26	Graphsoft	46
CD ROM		
34	Corel Corporation	78
251	Educorp	157
COMMUNICATION		
74	Lotus Development Co	14
DATA MANAGEMENT		
85	Claris	—
DIGITIZERS/SCANNERS		
68	Agfa	158
ENTERTAINMENT		
34	Corel Corporation	78
76	GT Interactive Software	184
FONTS		
119	Alsoft	140
GRAPHICS/DTP		
119	Alsoft	140
22	Deneba Software	—
23	Deneba Software	57
18	Fractal Design	—
157	Kaetron Software	67
116,117	Macromedia - FreeHand	244
20	MetaTools, Inc.	4
29	MetaTools, Inc.	5
49	Specular International	41
10	Xaos Tools	13
MISCELLANEOUS		
158	Inspiration Software	—
53	Xerox Corporation	100
MULTIMEDIA		
116,117	Macromedia - FreeHand	244
OCR		
11	Caere Corporation	69
ONLINE		
110	InfoSeek	47
9	Luckman Interactive	65
PERSONAL		
15	Intuit - Quick Books	—
SECURITY		
122	usrEZ Software	36
STATISTICAL		
35	SPSS INC.	85
UTILITIES		
132	Casady and Greene	58
78	Connectix - RAM Doubler	192
80	Connectix - Speed Doubler	193
37	Dantz Development	26
WORD PROCESSING		
118	World Software	145
HARDWARE		
BOARDS		
79	Adaptec	—
124	DayStar Digital	7
12	Orange Micro	33
14	Reply Corporation	—
CD ROM		
251	Educorp	157
COMPUTER SYSTEMS		
202,203	CRA Systems Inc.	20
182,183	Express Direct	81
2,3	Power Computing Corporation	161
190	Westwood Computers	101
DISPLAY		
202,203	CRA Systems Inc.	20
120	Hitachi NSA	74
IBC	NEC Technologies	16
32	Polaroid	295
36	Portrait Display Lab	89
6	ViewSonic	59
EXPANSIONS/UPGARDES		
209	L.A.Trade	—
124	DayStar Digital	7
FURNITURE		
14	Agio	—
HARD DISKS/STORAGE		
176,177	Alliance Peripheral Systems	62
199	BottomLine Distribution/ DGR Technologies	63
178,179	ClubMac	96
83	Kingston Technology	201
208	MegaHaus	245
21	Pinnacle Micro	115
184	ProDirect	135
INPUT DEVICES		
73	Eastman Kodak	45
BC	Kensington Microware Ltd.	1
28	Microfield Graphics	48
13	Visioneer	18
MICRO PROCESSOR		
2,3	Power Computing Corporation	161
MISCELLANEOUS		
100,101	American Power Conversion	72
50	Wacom Technology Corporation	146
MODEMS		
65	Supra/Diamond Multiledia	83
POWERBOOK		
84	Lind/Pilot Technologies	10
10	VST Power Systems	73
PRINTERS		
24,25	Epson America	—
43	Hewlett Packard— DesignJet line	11
136	LaserMaster	103
99	QMS	288
81	Seiko Instruments	93
71	Tektronix	143
113	Xante Corporation	112
SECURITY		
100,101	American Power Conversion	72
VIDEO		
82	Connectix - QuickCAM	191
SERVICES		
MISCELLANEOUS		
44	MacTemps	60
TRADESHOWS/CONFERENCES		
156	Macworld Expo	—
TRAINING		
123	MacAcademy	106
210	MacAcademy	107
ACCESSORIES		
FURNITURE		
8	Anthro	—
MISCELLANEOUS		
28	Microfield Graphics	48
MAIL ORDER		
176,177	Alliance Peripheral Systems	62
199	BottomLine Distribution/ DGR Technologies	63
178,179	ClubMac	96
193-195	Computer Discount Warehouse	2
198	DigiCore	269
206,207	DirectWare	88
182,183	Express Direct	81
175	J&R Computerworld	282
209	L.A.Trade	—
185-187	LaCie	52
204,205	Mac Bargains	70
188,189	Mac Zone	71
180,181	MacConnection	—
196,197	MacMall	131
212	MacMarket	258
200,201	MacWarehouse	150
208	MegaHaus	245
184	ProDirect	135
190	Westwood Computers	101
NEWTON		
HARDWARE		
N13	Apple Computer, Inc.	23
N7	Apple Computer, Inc.	—
N18	Now Software	31
SOFTWARE		
N5	AllPen Software, Inc.	21
N11	Education Research Labs, Inc.	27
N15	HealthCare Communications, Inc.	29
N14	LandWare, Inc.	30
N15	PelicanWare, Inc.	28
N2	Pen Ultimate	32
N17	Physix, Inc.	34
N17	Pinehill Softworks	35
N16	Shana Corporation	37
N9	Wright Strategies	39

Macworld
THE MACINTOSH® AUTHORITY

FREE

TWO SIMPLE WAYS TO GET FREE PRODUCT INFORMATION

Macworld puts you in touch with the information you need most with two easy options:

1 Fax In Card

dial 413.637.4343

Simply fill In the questionnaire, circle the reader service numbers that correspond to the vendors you would like information from, then fax your form to us at 413.637.4343. FREE product information will be sent to you directly from vendors.

2 Mail In Card

postage pre-paid

After filling In the questionnaire, circle the reader service numbers that correspond to the vendors you would like information from, then just drop the postcard in the mail. Vendors will send FREE product information directly to you.

READER SERVICE NUMBERS FOR ADVERTISED PRODUCTS CAN BE FOUND IN THE PRODUCT'S AD AND IN BOTH THE ADVERTISER INDEX AND PRODUCT INDEX.

PLEASE ANSWER THESE QUESTIONS, CHECK ALL ANSWERS THAT APPLY

Which of the following computers have you purchased within the last three years?

[ ] 1. Apple Workgroup Servers, Mac Quadra-series, Centris-series, II-series, Power Mac-series
[ ] 2. Mac Classic-series, LC-series
[ ] 3. Mac Performa-series
[ ] 4. Mac Power8ook-series, Duo-series
[ ] 5. Other Macs (SE, SE/30, Plus, 512K, etc.)
[ ] 6. None above.

Do you recommend, buy, specify or approve microcomputer software and/or peripherals?

[ ] Yes [ ] No

If yes, please indicate for how many Macintosh personal computers you have this involvement.

[ ] 1. 1-3 [ ] 5. 50-99
[ ] 2. 4-9 [ ] 6. 100-499
[ ] 3. 10-19 [ ] 7. 500+
[ ] 4 20-49

Do you use a Macintosh at:

[ ] 1. 8usiness, government
[ ] 2. Home: for education or entertainment
[ ] 3. Home: for work at home
[ ] 4. Home office
[ ] 5. Educational institution
[ ] 6. None above

Which of the following describes your occupation/ department function?

[ ] 1. Graphic arts, design, architecture
[ ] 2. General office/administration, management, personnel, purchasing
[ ] 3. Consulting
[ ] 4 Education, training
[ ] 5. Engineering/R&D
[ ] 6. Sales, marketing, advertising, communications
[ ] 7. MiS/DP
[ ] 8. Programming/software development
[ ] 9. Does not apply
[ ] 10. Other (specify below)

What is the primary business of your company/institution?

[ ] 1. Graphics
[ ] 2. Aerospace
[ ] 3. Business consultant
[ ] 4. College/university
[ ] 5. Elementary/high school
[ ] 6. VAR/VAD/retail/whole-sale (computer specific)
[ ] 7. Engineering
[ ] 8. Marketing, advertising, PR
[ ] 9. Printing/publishing
[ ] 10. Does not apply
[ ] 11. Other (specify below)

Title

Company

Phone

Fax

Check this box to subscribe to Macworld

YOU WILL BE B LED $24 FOR A ONE-YEAR 12 ISSUE SUBSCR PTION (US ONLY SUBSCR PTION WILL BE SEN TO NAM AS NOTED BELOW PLEASE C ANG IF MAIL N ADDRESS IS DI FERENT

1	2	3	4	5	156	157	158	159	160	271	272	273	274	275	486	487	488	489	490
6	7	8	9	10	161	162	163	164	165	276	277	278	279	280	491	492	493	494	495
11	12	13	14	15	166	167	168	169	170	281	282	283	284	285	496	497	498	499	500
16	17	18	19	20	171	172	173	174	175	286	287	288	289	290	501	502	503	504	505
21	22	23	24	25	176	177	178	179	180	291	292	293	294	295	506	507	508	509	510
26	27	28	29	30	181	182	183	184	185	296	297	298	299	300	511	512	513	514	515
31	32	33	34	35	186	187	188	189	190	401	402	403	404	405	516	517	518	519	520
36	37	38	39	40	191	192	193	194	195	406	407	408	409	410	521	522	523	524	525
41	42	43	44	45	196	197	198	199	200	411	412	413	414	415	526	527	528	529	530
46	47	48	49	50	201	202	203	204	205	416	417	418	419	420	531	532	533	534	535
51	52	53	54	55	206	207	208	209	210	421	422	423	424	425	536	537	538	539	540
56	57	58	59	60	211	212	213	214	215	426	427	428	429	430	541	542	543	544	545
61	62	63	64	65	216	217	218	219	220	431	432	433	434	435	546	547	548	549	550
66	67	68	69	70	221	222	223	224	225	436	437	438	439	440	551	552	553	554	555
71	72	73	74	75	226	227	228	229	230	441	442	443	444	445	556	557	558	559	560
76	77	78	79	80	231	232	233	234	235	446	447	448	449	450	561	562	563	564	565
81	82	83	84	85	236	237	238	239	240	451	452	453	454	455	566	567	568	569	570
86	87	88	89	90	241	242	243	244	245	456	457	458	459	460	571	572	573	574	575
91	92	93	94	95	246	247	248	249	250	461	462	463	464	465	576	577	578	579	580
96	97	98	99	100	251	252	253	254	255	466	467	468	469	470	581	582	583	584	585
101	102	103	104	105	256	257	258	259	260	471	472	473	474	475	586	587	588	589	590
106	107	108	109	110	261	262	263	264	265	476	477	478	479	480	591	592	593	594	595
111	112	113	114	115	266	267	268	269	270	481	482	483	484	485	596	597	598	599	600
116	117	118	119	120															
121	122	123	124	125															
126	127	128	129	130															
131	132	133	134	135															
136	137	138	139	140															
141	142	143	144	145															
146	147	148	149	150															
151	152	153	154	155															

PLEASE PRINT OR TYPE ALL INFORMATION.

Expires July 18, 1996 X1 April 1996

Name

Address

City

State Zip

TWO SIMPLE WAYS TO GET FREE PRODUCT INFORMATION

Macworld puts you in touch with the information you need most with two easy options — fax back or mail in the reader service card.

Fax back. Mail in. Just don't miss out.

FREE

50%
TOTAL RECOVERED FIBER
10% POST-CONSUMER FIBER

NO POSTAGE NECESSARY IF MAILED IN THE UNITED STATES

BUSINESS REPLY MAIL

FIRST-CLASS MAIL PERMIT NO. 215 PITTSFIELD MA

POSTAGE WILL BE PAID BY ADDRESSEE

Macworld

READER SERVICE DEPARTMENT
PO BOX 5299
PITTSFIELD MA 01203-9519

One Of America's Largest Authorized Apple Dealers

J&R COMPUTER WORLD

Fargo FotoFUN! Digital Color Photo Printer
•Print real color photos from your computer with color and clarity as good as that of traditional snapshots •Make your own photo postcards, up to 4" x 6" •Create personalized photo mugs

$399.99 (FAA 53002)

Fargo FotoFUN! Print Film Kit
•Includes ribbon & film for 36 prints
(FAA 53050)..... **$34.99**

iomega Zip™ Drive
•Unlimited storage on inexpensive 100MB disks •Portability and easy plug-and-play set-up •Comes with a SCSI cable and one 100MB removable disk

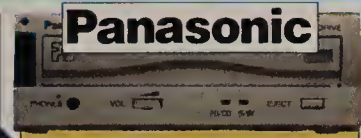
$199.99 (BER ZIP100SCSI)

Extra 100MB Cartridge
(BER MAC100MBDSK). **$19.99**

iomega Jaz™ Drive
•Provides 1GB of disk space on each compact cartridge •Portable–goes where you go •Auto-termination makes setup simple •Includes one cartridge

$599.99 (BER JAZEXTSCSI)

Extra 1GIG Cartridge
(BER MAC1GIGCART). **$124.99**



Panasonic PowerDrive2 External Optical Disk/CD-ROM Drive
•Backup storage reads & writes like a hard drive-650MB capacity •4x-speed CD-ROM drive •For PC & Macintosh •Includes 1 optical disk, SCSI cable & driver

$649.99 (PAN LF1000AB)

Extra 650MB Cartridge
(PAN LMR650A)..... **$59.99**

Visioneer PaperPort Vx
•The easiest way to file, fax, edit or copy a document •Direct links to hundreds of todays most popular software •256 grayscale imaging •Incudes OmniPage LITE OCR, CardScan SE business card reader and PictureWorks Copier software, cable and power supply

$299.99
(VIR PAPERVXMAC)

Global Village PowerPort Platinum™ Pro Fax/Modem & Ethernet Adapter PC Card
•28,800 bps data/14,400 bps fax speed •GlobalFax, GlobalFax OCR & PC Card Enhanced software •For PowerBook 190/5300 series

$499.99
(GLV POWRPLTPRO)

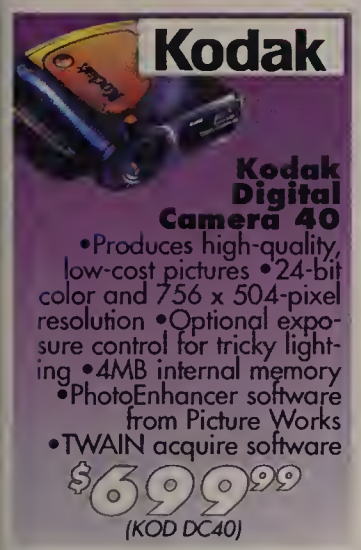
Without Ethernet Adapter
(GLV PCMCIAPLTNM)
$339.99

Global Village TelePort Platinum™ 28,800 BPS External Data/Fax Modem
•Send & receive data up to 28,800 bps •V.34 standard •Includes GlobalFax™, GlobalFax™ OCR & Data communications software •For Macintosh desktops

$199.99
(GLV TELEPRTPLN)

TDK DF2814 V.34 Data Fax PCMCIA Modem For Apple PowerBook
•Full-features, ultra high speed PCMCIA data/fax modem with internal DAA phone line interface •28.8 Kbps data, 14.4 fax •Cellular ready •MNP 10 •Advanced Parallel Technology™ •5-year warranty

$249.99
(TDK DF2814APB)



Kodak Digital Camera 40
•Produces high-quality, low-cost pictures •24-bit color and 756 x 504-pixel resolution •Optional exposure control for tricky lighting •4MB internal memory •PhotoEnhancer software from Picture Works •TWAIN acquire software

$699.99
(KOD DC40)

Hewlett-Packard DeskWriter 600
•Inkjet printer has new ink formulation which provides clearer and crisper blacks and brighter colors (with optional color kit) •600 dpi resolution •Resolution Enhancement Technology •Prints on 4 x 6" up to 8.5 x 14" paper •Up to 4-ppm B/W, 1-ppm color

$249.99
(HP C2185A)

Hewlett-Packard DeskWriter 340CM
•600 x 300 dpi black printing •3ppm •Includes color kit and HP ColorSmart technology gives you vibrant color at the touch of a button •Includes Macintosh adapter and 30-page sheet feeder •Lightweight, fits in briefcase

$349.99
(HP C2663A)

Hewlett-Packard ScanJet 4c Color/Grayscale Scanner
•600 dpi optical resolution, 2400dpi enhanced •Easy-to-use •Ideal for word processing, desktop publishing, OCR, E-mail, E-fax & copying •Interface & Caere OmniPage LE OCR

$979.99 (HP C2529B)

Software

BUSINESS

Connectix
RamDoubler-Moc/PowerMoc
(CNM RAMDOUBL-MP) **$54.95**

Symantec
Norton Utilities 3.2-Moc/PowerMoc
(SMM NORTON3.2) **$89.95**

Intuit
Quicken 6.0
(IUM QUICKEN6) **$49.95**

Microsoft
Office 4.21-Moc/PowerMoc
(MSM OFFICE4.21) **$449.95**

Nisus
Writer 4.1 with Language Key
(NSM WRITER+LK) **$199.95**

Caere
OmniPage Direct 2.0
(CQM OMNIDIRECT2) **$59.95**

Ventanna
Internet Membership Kit 2.0
(VNM INTERNET2) **$44.95**

Apple
System 7.5-Moc/PowerMoc
(APP M2920LL)-Floppy
(APP M2925LL)-CD **$89.95**

HSC
KPT Vector Effects-Moc/PowerMoc
(HSM KPTVECTOR) **$119.95**

Quark
Xpress 3.3-PowerMoc Only
(QUM QUARKPM-C)-CD ... **$649.95**

Edutainment

Spectrum
Tetris Gold
(SHI TETRISGLD-C)-CD **$24.95**

Mindscape
Mavis Beacon Teaches Typing
(MDM MAVISTYPING) **$29.95**

Corel
All Movie Guide
(CRB ALLMOVIE-C)-CD **$19.95**

Voyager
Amnesty Interactive
(VOI AMNESTY-C)-CD **$12.95**

Comptons
Interactive Encyclopedia 1995
(BTM CIE-C)-CD **$44.95**

Lucas Film
Dark Forces
(LFM DARKFORCE-C)-CD **$49.95**

Discovery
Nile Passage to Egypt
(DCA NILE-C)-CD **$29.95**

GT Interactive
Doom 2
(GTA DOOM2)-Floppy
(GTA DOOM2-C)-CD **$44.95**

Maxis
SIMCity 2000
(MM SIMCITY2K) **$39.95**

To Order Toll Free and Receive a Free Catalogue

800-221-8180

24 Hours A Day, 7 Days A Week, Anywhere In The USA

MAIL ORDERS: J&R Computer World Dept. MW0496
• 59-50 Queens Midtown Expressway • Maspeth, Queens NY 11378
CALL 1-800-221-8180 for shipping information. DO NOT SEND CASH.
FAX us at: 1-800-232-4432

Not responsible for typographical or pictorial errors. Some quantities may be limited. All merchandise brand new, factory fresh and 100% guaranteed!

VISA MasterCard DISCOVER NOVUS

Circle 282 on reader service card

GREAT PRODUCTS... PRICELESS SUPPORT

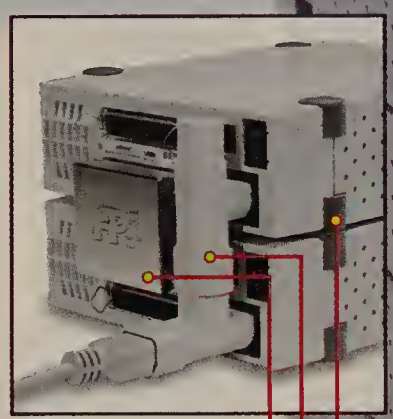
APS Technologies

STORE A LOT!

2GB STORAGE FOR ONLY

$499.95

Internal configurat



SCSI Conduit®

SCSI "C" Connector

2-PowerT Connectors

4-stacking feet

only **$29.95**

Mini SCSI Link (12" cable) $19.95

APS I 2160

IBM

- ✔ Your best value for enhanced performance and capacity
- ✔ Average seek time of 8ms
- ✔ Over 2060MB Formatted capacity
- ✔ Media transfer rate 47.4 – 71.6 Mbits/sec

With high-performance, superior reliability, and exceptional value, the new APS I 2160 is an attractive choice as your next workstation or server drive. Its 2063MB formatted capacity, IBM drive technology and 800,000 hour MTBF fit the rigorou demands of many applications ranging from database and spreadsheet use to desktop publishing and imaging.

APS DESKTOP DRIVES

Model	Capacity	Awards	Internal	SR2000
APS Q 840 Quantum 840 Trailblazer	811MB	Macworld LABS ★★★★	$199.95	$299.95
APS I 1080 IBM DPES 31080	1034MB		239.95	339.95
APS Q 1080 Quantum 1080 Fireball	1042MB	Macworld LABS ★★★★ ◆◆◆◆ MacWEEK	269.95	349.95
APS Q 1280 Quantum Fireball II 1280	1222MB		299.95	399.95
APS I 2160 IBM Ultrastar ES	2063MB		499.95	599.95
APS MS 2000 Micropolis 4421	2000MB		549.95	649.95
APS Q 2210 Quantum Capella VP32210	2100MB	Macworld LABS ★★★½	629.95	729.95
APS ST 4200 Seagate ST 15230N	4094MB	Macworld LABS ★★★★	899.95	999.95

APS HIGH-PERFORMANCE DRIVES

Model	Capacity	Awards	Internal	SR2000
APS MS 2.0 Micropolis 4221	1955MB	Macworld LABS ★★★½	$599.95	$699.95
Fast/Wide or AV versions are available for an additional $100.00				
APS Q 2.0 Quantum Atlas XP32150	2050MB	Macworld LABS ★★★★	799.95	899.95
Fast/Wide version is available for an additional $100.00				
APS ST 2.0 Seagate ST 325S0N Barracuda	2047MB		799.95	899.95
APS MS 4.0 Micropolis 3243	4064MB	Macworld LABS ★★★★	999.95	1099.95
Fast/Wide or AV versions are available for an additional $100.00				
APS ST 4.0 Seagate ST 15150N	4094MB	Macworld LABS ★★★½	1199.95	1299.95
APS Q 4.0 Quantum Atlas XP34300	4101MB	◆◆◆◆ MacWEEK Macworld LABS ★★★½	1199.95	1299.95
Fast/Wide version is available for an additional $100.00				

SCSI POWERBOOK DRIVES

Model	Capacity/Features	Drive Type	Interna
APS I 810 IBM Travelstar XP	810MB 4900 rpm	Fast SCSI-2	$499
APS I 1.2 IBM Travelstar XP	1215MB 4900 rpm	Fast SCSI-2	699

IDE POWERBOOK DRIVES

Model	Capacity/Features	Drive Type	Interna
APS Q 810 Quantum Europa	810MB 3800 rpm	Fast ATA2	$399
APS PB 170 Avatar mechanism	170MB Each cart $49.95	Removable cartridge	399
APS Q 1.08 Quantum Europa	1037MB 3800 rpm	Fast ATA2	499

APS I 1080

- ✔ Over 1GB capacity with Fast SCSI-2 interface
- ✔ IBM Magneta-Resistive (MR) head technalagy
- ✔ Enhanced power management
- ✔ 3-year warranty

$239.95

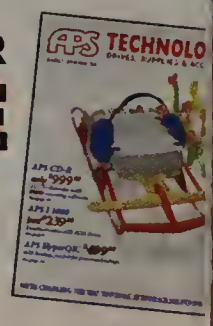
Internal configuration

- 30-day money-back guarantee on all APS brand products. Your risk is the cost of shipping.
- Drive-for-Drive Repair or Replacement Warranty. The warranty length is denoted by the superscripted number next to each drive model. APS will, at its discretion, replace or repair products found to be defective according to the terms of the product's warranty.
- Refused orders subject to 20% restocking fee.
- Listed capacities are formatted
- Actual data compression and tape capacity vary greatly depending on the type of data recorded, other system parameters and environment.
- Prices and specifications are subject to change without notice.
- Not responsible for typographical errors.
- Copyright © 1996 APS Technologies

CALL FOR YOUR FREE

Early Spring 1996 **CATALOG**

Featuring Our Complete line of APS Drives, Supplies & Accessories



Best Technical Support

MW ★★★★ ◆◆◆◆ MacWEEK

1994 MAC HOME JOURNAL READER'S CHOICE

BMUG

MW EDITORS CHOICE

Macworld

Macworld RECOMMENDS

APS TECHNOLOGIES

BACKUP FAST!
STAY OUT OF TROUBLE!

Call Us 24 HOURS A DAY, 7 DAYS A WEEK

APS HyperDAT

- The performance leader in DAT backup
- High-capacity DDS-2 backups – up to 8GB an a single 120m tape with hardware compression
- High-speed backup – up to 28MB per minute
- Includes the latest Retraspect backup software – Free

elivering backup speeds as high as 28MB r minute, this DDS-2 backup system can pack to an incredible 8GB on a single 120m DAT tape! tting the standard for high-capacity, high-speed backup, the S HyperDAT can also use 60 and 90m tapes, either new or as itten by other DDS-1 or DDS-2 compatible drives. Perfect for fice and network backup and archive!

$899.95 External configuration

New Low Price!

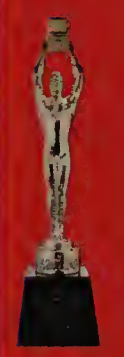
APS DAT

$699.95 External configuration

- The value leader in DAT backup
- Twice the speed af standard DAT – up ta 19MB per minute
- Includes the latest 3.0 Retrospect backup saftware – Free
- 2GB native capacity an 90m DAT tapes – mare with software data campression

Your best value in DAT technology is the new APS DAT. It can pack up to 2GB of uncompressed data on a 90m DAT tape at a fast 19MB per minute – that's twice as fast as a standard DAT drive. It is especially well-suited to digital video and multimedia backups that don't require hardware data compression, as well as any situation where backup speed and capacity are a must.

MacWorld Magazine World Class Award



MacUser Editor's Choice Award

Computerworld's Choice Award

APS TAPE DRIVES

Model	Capacity	Awards	Internal	SR2000
S HyperQIC 3080 Mechanism	2GB	LABS ½ ★★★★½ ◆◆◆◆ MacWEEK	N/A	$499.95
S DAT S-1 Non-Compression Mechanism	2GB		$649.95	699.95
S HyperDAT S-2 Compression Mechanism	8GB		849.95	899.95
S HyperDAT Pro S-2 High Speed Mechanism	8GB		1049.95	1099.95
S DAT Loader600 al for unattended large network backups	48GB		N/A	2499.95
S DLT30 ital Linear Tape Mechanism	30GB	MACUSER XWARD 1995 FINALIST	N/A	4499.95
S DLT40 ital Linear Tape Mechanism	40GB		N/A	5999.95
S DLT4500 Loader ital Linear Tape Mechanism	200GB		N/A	9999.95
S DLT4700 Loader ital Linear Tape Mechanism	280GB		N/A	11499.95

APS MO DRIVES

Model	Awards	SR2000
APS 230MB MO	LABS ★★★★	$399.95
APS 1.3GB MO 4MB Cache		1699.95
OPTICAL JUKEBOX Up to 26GB of reliable MO storage		9999.95

APS SYQUEST DRIVES

Model	Capacity	Awards	Internal	SR2000
EZ135	135MB		N/A	$229.95
APS SQ 5200	194MB	LABS ★★★★½ COMPUTER	$339	389.95
APS SQ 3270	255MB	LABS ★★★★	N/A	349.95

APS CD-ROM DRIVES

Model	Awards	Internal	SR2000
APS T 3701 6.7X-speed CD-ROM		$399.95	$449.95
APS PD4 Optical storage with 4X CD-ROM in one device		N/A	599.95
APS CD-R Recordable CD-ROM		N/A	999.95

ZIP?, EZ? WHO CARES!
GET 270MB OF FAST SYQUEST STORAGE FOR

ONLY **$329.95*** Internal configuration

SyQuest®

APS SQ 3270

- Uses 105MB & 270MB cartridges
- Perfect far desktap ar laptap computers — LABS ★★★★
- Delivers fixed platter drive perfarmance
- 2-year warranty

*Only with the purchase of a SQ270MB Preformatted cartridge

SAVE TIME, SAVE $$$
ON PREFORMATTED MACINTOSH SYQUEST CARTRIDGES FROM APS

Our preformatted SyQuest cartridges have been formatted using the current version of APS PowerTools. They are also loaded with System 7.0.1 and a free copy of APS PowerTools.

SQ-400 (44MB)	42.00
SQ-800 (88MB)	47.00
SQ-310 (105MB)	54.00
SQ-327 (270MB)	60.00
SQ-2000 (200MB)	76.00

VISA MasterCard DISCOVER NOVUS TeleCheck

Visa, MasterCard, Discover, American Express: No Surcharge
Same day shipping for personal checks (Restrictions apply)

Circle 62 on reader service card

Visit our Web Page at http://www.apstech.com/ **International Sales: (816) 920-4109**

CALL TODAY!

800-874-1428

APS Technologies

REF. CODE: 286004

1-800-258-2622 CLUBMAC 1-800-258-2622 1-800-258-2622

$259 Quantum LIGHTNING 730MB
Internal Fireball C109 1202
FIREBALL 1GB
12ms Access Time
11ms Access Time
Internal Lightning C109 1154
30 DAY BEST BUY $185

$999 Quantum GRANDPRIX
BEST BUY 4.3GB 7200 RPM
MacUser ★★★★ October 1995
Internal Grand Prix C109 1159
30 DAY

$359* ClubMac 200MB Removable
FEATURING SyQuest REMOVABLE TECHNOLOGY
200MB
30 DAY
C109 1222
*Cartridge sold separately.

$199.99 Iomega Zip Drive
I044 1010
IN STOCK
Features:
29ms Access Time
One Free Cartridge
ONE Year Warranty
100MB

$339 N024 1070 NEC
MultiSpin 4Xc 7 Disc Changer Load 7 Discs at a time!
1 Year

$1299 OLYMPUS
OLYMPUS IMAGE SYSTEMS, INC.
0066 1003
DELTIS CD-R2
2X CD Recordable
Features:
1MB Buffer
Gear Software
ONE Year Warranty

ClubMac®
Source Code 69046
1-800-258-2622

CLUBMAC HARD DRIVES

Quantum

		Internal/External	Internal/External
730MB Lightning	BEST BUY	C109 1154/C109 1102	$185/$245
850MB TrailBlazer		C109 1206/C109 1207	$199/$259
1080MB Fireball		C109 1202/C109 1203	$259/$319
2200MB Capella		C109 1213/C109 1212	$669/$729
4300MB Grand Prix	BEST BUY	C109 1159/C109 1108	$999/$1059
4300MB Atlas	BEST BUY	C109 1122/C109 1121	$1139/$1199

Seagate

2.4GB Hawk 2 LP ST32430N	C109 2211/C109 2112	$739/$799
4.3GB Hawk 4 ST15230N	C109 2212/C109 2113	$999/$1059
2.5GB Barracuda 2 LP ST32550N	C109 2203/C109 2109	$889/$949
4.3GB Barracuda 4 ST15150N	C109 2207/C109 2106	$1259/$1319
5.25" Full Height		
9.1GB Elite-9 ST410800N	S020 1014/C109 2110	$2199/$2299

CLUBMAC 2.5" HARD DRIVES

Quantum

		Internal/External	Internal/External
341MB Daytona	BEST BUY	Q030 1041/C109 1119	$179/$299
514MB Daytona		Q030 1002/C109 1109	$219/$339
810MB Europa IDE		C109 1022	$429 Internal
1080MB Europa IDE		C109 1023	$475 Internal

CLUBMAC FAST AND WIDE DRIVES

Seagate

	Internal/External	Internal/External
2.1GB Barracuda 2LP ST32150W	C109 2214/C109 2215	$959/$1059
4.3GB Barracuda 4 ST15150W	C109 2206/C109 2208	$1319/$1419
9.1GB Elite 9 ST410800W	C109 2222/C109 2223	$2379/$2499

Quantum

2.2GB Capella VP32210SW	C109 2219/C109 2217	$699/$799
4.3GB Grand Prix XP34301SW	C109 2216/C109 221	$1029/$1129

FAST AND WIDE SCSI CONTROLLERS

adaptec

A024 1006	PowerDamain AHA 2940W SCSI Acceleratar	$299
A029 1001	Adaptec Remus 1.3 (Raid Levels 1, 4, 5)	$439

FWB incorporated

F094 1033	SCSI JackHammer PCI	$389
F094 1002	SCSI JackHammer NuBus	$459

QLogic

Q010 1008	Fast!SCSI MAC PCI-N Fast SCSI-2 (10 MB/sec) connectivity	$229
Q010 1009	Fast!SCSI MAC PCI-W Fast/Wide SCSI (20 MB/sec) connectivity	$295
Q010 1010	Fast!SCSI MAC PCI-D Fast/Wide SCSI requiring longer I/O cables	$449

CD-ROM READERS

NEC

		Access Time	Trans Rate	
N024 1062	MultiSpin 6Xe CD-ROM Reader	150ms	900k/sec	$479
N024 1070	MultiSpin 4Xc 7 Disc Changer	350ms	600k/sec	$339
N024 1011	MultiSpin 3Xp plus CD-ROM Reader	240ms	500k/sec	$379

ClubMac

		Access Time	Trans Rate	
C109 9700	ClubMac 2X 7 Disc CD-ROM Changer	350ms	300k/sec	$149
C109 9555	ClubMac Six-Speed CD-ROM Drive	145ms	900k/sec	$369
C109 9546	ClubMac Quad-Speed CD-ROM Drive	140ms	600k/sec	$199
C109 9550	ClubMac Dual-Speed CD-ROM Drive	350ms	300k/sec	$88.88

7 Hammond, Irvine CA 92718
NO SURCHARGE!

- ClubMac hard drives include all cables, cords, leds, and brackets necessary for use with the Macintosh you specify. ClubMac formats all hard drives and installs Apple System 7.1 software, Cle Anubis Driver, and PowerMerge LE.
- External drives include a Double Shielded, twisted pair 25-50 SCSI cable.
- ClubMac honors all original equipment manufacturers warranties. ClubMac will repair or replace drives at it's discretion. Drives returned within first 30 days of purchase are replaced with a new
- All ClubMac hard drives include a 30 day money back guarantee. Your risk is the cost of shipping.

WARRANTIES: All items manufactured by ClubMac are returned to ClubMac for warranty repair. All other items carry manufacturer's warranty. MONEY BACK GUARANTEE: All products manuf ClubMac carry a 30 day money back guarantee. ClubMac extends all other manufacturers' return policies to its customers. Non-ClubMac products carry 30 day money back guarantee when RETURNS: Call for RMA number! Any product that is returned WITHOUT an RMA number will be refused. ALL PRODUCT INFORMATION AND PRICES ARE SUBJECT TO CHANGE WITHOUT NO RESPONSIBLE FOR TYPOGRAPHICAL ERRORS.

Call Toll Free 1-800-258-26
for a FREE Subscription to the ClubMac

REMOVABLE DRIVES

ClubMac / SyQuest

C109 1222	ClubMac 200MB 5.25" Removable* (BEST BUY)	$3
C109 1221	ClubMac 88MB 5.25" Removable* (BEST BUY)	$1
C109 1224	ClubMac 270MB 3.5" Removable*	$3
C109 1223	ClubMac 105MB 3.5" Remavable	$1
S198 2001	SyQuest EZ135 135MB 3.5" Remavable	$23

*Cartridge not included

SyQuest Media

	Media	Qty 1	Qty 10	Q
S198 1010	44MB	$42ea	$41ea	$4
S198 1011	88MB	$47ea	$46ea	$4
S198 1012	200MB	$75ea	$73ea	$7
S198 1013	105MB	$35ea	$34.50ea	$3
S198 1014	270MB	$60ea	$59ea	$5
S198 2010	EZ135MB	$23ea	$22.50ea	$2

iomega

I044 1010	Zip drive with One 100M8 cartridge	$19
I040 1006	Zip Cartridge (100MB)	$1
I040 1011	Zip Cartridge (3 pack)	$4
I040 1010	Zip Cartridge (10 pack)	$14

TAPE BACKUP

ClubMac

Shipped with Retrospect 3.0

C109 2042	ClubMac 2-4GB SCSI MiniCartridge Drive	$4
C109 5039	ClubMac 2.0GB ThunderDAT Drive	$7
C109 5000	ClubMac 4-8GB DDS-2 DAT Drive	$8
C109 4301	ClubMac 4-8G8 DDS-2 SuperDAT Drive	$11
C109 1236	ClubMac 40GB DLT Subsystem OLT 4000	$57
S100 1043	Sany QW3080XLF QIC/WIDE 2-4GB Cartridge	
V010 1025	4mm 60 meter DAT Cartridge	
V010 1018	4mm 90 meter DAT Cartridge	
V010 1043	4mm 120 meter DAT Cartridge	
Q034 1022	1/2 inch media for DLT 4000	

OPTICAL DRIVES

ClubMac

C109 5022	ClubMac 5.25" Olympus 1.3GB Optical	$13
C109 5020	ClubMac 3.5" Olympus 230MB Optical	$4
V010 1012	3.5" 230M8 512 Bytes/Sectar Optical Cartridge	
V010 1020	5.25" 1.2G8 512 Bytes/Sectar Optical Cartridge	
V010 1021	5.25" 1.2GB 1024 Bytes/Sectar Optical Cartridge	

TORAY Optical Storage Solutions

T140 1001	TORAY Phasewriter DUAL™ PD	$
T140 2001	TORAY PDM-650 Media (ZCAV 650MB)	

PINNACLE MICRO THE OPTICAL STORAGE COMPANY

P074 1005	Apex 4.6GB Optical 4X CD/650MB Optical	$15
P074 1006	Apex 4.6GB 1024K Media	$1

CD RECORDABLE DRIVES

YAMAHA®

Y010 1002	Yamaha 4X CD Recarder w/Toast CD Mastering software	$27

PINNACLE MICRO THE OPTICAL STORAGE COMPANY

P074 1008	RCD-5020 Recardable CD System w/ Pinnacle software	$12
P074 1001	RCD-1000 Recardable CD System w/Toast CD	$14

OLYMPUS OLYMPUS IMAGE SYSTEMS, INC.

0066 1003	DELTIS CD-R2 2X CD Recardable w/ GEAR software	$12

ubMac

ers the full line of
ble Products

Authorized Catalog Reseller

24 HOURS A DAY NOW OPEN 7 DAYS A WEEK

MONITORS

adius

6 1031	Radius PressView 17•SR Display System	$1999
6 1009	Radius Intellicolor Display/20e	$1995
6 1032	Radius PrecisionView 21 Display	$2299
6 1034	Radius PressView 21•SR Display System	$3149

NEC

6 1031	NEC 15" MultiSync XV15"+	$469
6 1032	NEC 17" MultiSync XV17"+	$799
6 1009	NEC 17" MultiSync XP17"	$1049
6 1010	NEC 21" MultiSync XE21"	$1779
6 1011	NEC 21" MultiSync XP21"	$2159

SONY.

6 1021	Sony Multiscan Trinitron 15SX-1	$460
6 1017	Sony Multiscan Trinitron 15SF-2	$519
6 1018	Sony Multiscan Trinitron 17SF-2	$915
6 1019	Sony Multiscan Trinitron 17SF-2T	$1099
1020	Sony Multiscan Trinitron 20SF-2	$1855

Portrait Display Labs

6 1003	Portrait/Pivot 1700 .26 Dot Pitch	$1049
6 1004	Portrait/Pivot 1700 .28 Dot Pitch	$989

MAG INNOVISION

6 1004	Mag 15" Technitron DX15T Trinitron	$459
6 1005	Mag 17" Technitron DX17T Trinitron	$799

PRINTERS

HEWLETT PACKARD

7 1030	HP LaserJet 5MP Laser Printer	$1045
7 1039	HP DeskWriter 600 InkJet Printer	$299
7 1033	HP DeskWriter660C Inkjet Printer	$399
7 1041	HP DeskJet 850C InkJet Printer	$515
7 1042	HP DeskJet 1600CM/PS PostScript Printer	$1985
7 1047	HP DeskJet 340 InkJet Printer	$299
7 1048	HP Mac Adapter for DeskJet 340 InkJet Printer	$29.95

EPSON

7 1018	Epson Stylus Color II	$449
7 1019	Epson Stylus Color Pro	$599
7 1022	Epson Stylus Pro XL	$1799

NEC

7 1001	NEC SilentWriter Model 640	$399
7 1006	NEC SuperScript 3000M Color Dye-Sub	$399

SCANNERS

EPSON

5 1003	Epson ES-1200C Pro-MAC Color Scanner	$1179
5 1013	Epson ES-1000C MAC Scanner	$735

AGFA

1011	Agfa StudioScan IIsi	$939
1001	Agfa Arcus II	$2195

HEWLETT PACKARD

5 1013	HP ScanJet 4s Personal Scanner	$299
5 1009	HP ScanJet 4c Color/GS Scanner	$949

MICROTEK

50 1006	Microtek Scanmaker III	$1989
50 1026	Microtek Scanmaker E3	$399

UMAX

0 1052	Umax PowerLook II w/ Transparency Adapter	$3395
0 1053	Umax Vista-S8 LE w/ Transparency Adapter	$799
0 1038	Umax Vista-S8 Pro	$769
0 1010	Umax Vista-S6 LE	$559

GRAPHIC CARDS

radius

R013 1059	Radius Thunder IV GX 1600	$1989
R013 1061	Radius Thunder IV GX 1152	$1589
R013 1069	Radius PrecisionColorB/1600 PCI Card	$479
R013 1070	Radius Thunder30/1152 PCI Card	$799
R013 1071	Radius Thunder30/1600 PCI Card	$1189
R013 1072	Radius ThunderColor 30/1152 PCI Card	$1569
R013 1073	Radius ThunderColor 30/1600 PCI Card	$1999
R013 1026	Radius Spigot Power AV	$599
R013 1018	Radius VideoVision Studio 2.5.1	$2399
R013 1077	Radius Telecast Upgrade for VideoVision	$3429

ATI TECHNOLOGIES INC.

A143 1010	ATI XCLAIMGA 2MB PCI Graphics Card	$359
A143 1009	ATI XCLAIMGA 4MB PCI Graphics Card	$469

TRUEVISION

T043 1001	Targa 2000 (PCI Mac)	$4295

IMS INTEGRATED MICRO SOLUTIONS

I143 1001	IMS Twin Turbo 128M 4MB PCI	$579

NUMBER NINE VISUAL TECHNOLOGY

N080 1003	Imagine 128 True 1288it 4MB PCI	$869

GRAPHICS TABLETS

WACOM

W010 1026	ArtPad II 4x5 w/Erasing Pen	$139	W010 1033	$369
W010 1028	ArtZ II 6x8 w/Erasing Pen	$298	W010 1034	$528
W010 1029	ArtZ II 12x12 w/Erasing Pen	$425	W010 1035	$655
W010 1030	ArtZ II 12x18 w/Erasing Pen	$695	W010 1036	$925

With Painter 4.0

ACCELERATORS

DAYSTAR DIGITAL

0040 1018	DayStar Turbo 040	$599
0040 1057	DayStar 100MHZ PowerCard 601	$969
0040 1043	DayStar 100MHZ PowerPro 601	$1199
0040 1039	DayStar 66MHZ Turbo 601 for IIci	$839
0040 1048	DayStar 100MHZ Turbo 601 for IIci	$1139
0040 1050	DayStar 100MHZ Turbo 601 for IIsi	$1139
0040 1052	DayStar 100MHZ Turbo 601 for Performa, IIvx, IIvi	$1139

MODEMS

FAST MAC

B030 1007	Fast Mac V.34 28.8 Fax/Data Modem	$139

BEST DATA Merging Multimedia & Communications

B020 1001	Best Data 2B34FLXMAC 28.8 V.34 External Mac	$158
B020 1003	Best Data 2B34VLXMAC 28.8 V.34 External Mac w/Voice Mail	$188

GLOBAL VILLAGE COMMUNICATION

G050 1006	TelePort Gold II	$109
G050 1016	TelePort Platinum	$199
G050 1002	PowerPort Mercury for PB 5xx	$325
G050 1019	PCMCIA 28.8KBPS Fax/Data/10BaseT Ethernet	$499
G050 1020	PowerPort Platinum PCMCIA Card 28.8kbps Fax/Data	$339

Megahertz

M070 1021	28.8Kbps PC Card modem w/XJACK®	$295
M070 1022	14.4Kbps PC Card modem w/XJACK®	$185

TDK

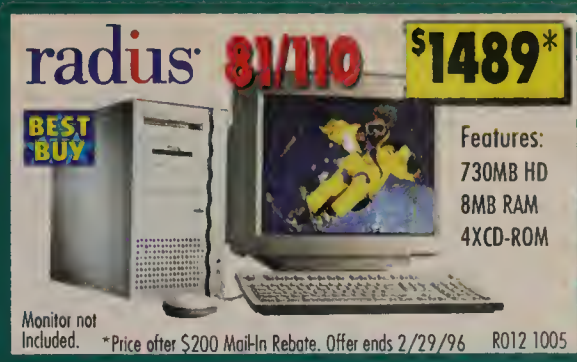
T210 1001	28.8Kbps V.34 Data/Fax PCMCIA modem Card	$239

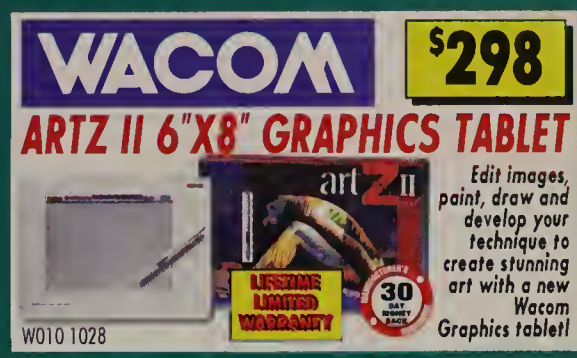
NETWORKING

ASANTÉ

A120 1010	10BaseT FriendlyNet Media Adapter FN10TA	$39.95
A120 1023	Thick/10BaseT MGNB-10T	$109
A120 1003	10BaseT Hub (8 RJ45 ports, 1 AUI & 1 BNC) 10THUB/8	$149
A120 1062	10BaseT Hub (12 RJ45 ports, 1 AUI & 1 BNC) 10THUB/12	$149
A120 1032	ASANTÉ Micro ASANTÉPRINT 10BT	$285
A120 1054	ASANTÉ Ethernet card for Nubus 10BT	$49
A120 1059	ASANTÉ LC-TN for LC & LCIII w/FPU	$59

neral Sales ..... 24 Hours a Day, 7 Days a Week (800) 258-2622
uiries and Int'l Sales ..... Monday - Friday 5am - 9pm PST (714) 768-8130
porate/Educ Sales ..... Monday - Friday 5am - 9pm PST (800) 258-2621
Customer Service ..... Monday - Friday 7am - 5pm PST (800) 551-6398
Technical Support ..... Monday - Friday 7am - 5pm PST (800) 854-6227
24-Hour Fax ..... (714) 768-9354





1-800-258-2622 1-800-CLUBMAC 1-800-258-2622

Circle 96 on reader service card

MacCo

Call the experts on our NEW 800-Hotlines: for Apple Systems & Memory Upgrades!

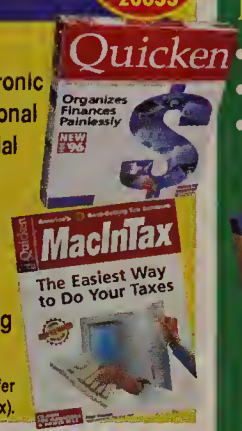
FREE TECH SUPPORT • NEXT DAY DELIVERY • AWESOME SER

EXCLUSIVE BUNDLE! ONLY $54.90* SAVE $25! 26833

Quicken 6.0
The award-winning electronic checkbook for your personal or small business financial management.

MacInTax
Prepares your personal income tax returns and forecasts for the following year's taxes.

*Reg. $79.90; price includes $20 offer plus $5 mfr.'s rebate (coupon in box).



Power Bundle!

FREE RAM Doubler

- Twice the RAM without upgrading
- Have more open applications
- Larger range for video, multimedia and graphics

SoftWindows 3.5

- Runs all Windows and DOS applications
- Puts PC environment into a scaleable window on Mac desktop
- 486 processor emulation included

26530 SoftWindows Power Mac/ RAM Doubler 3.5" Disk.....$294.95
26529 SoftWindows Power Mac/ RAM Doubler CD..... 294.95

Full line of Apple® Systems
800-800-MACs

GLOBAL VILLAGE CONNECTS YOU TO THE WORLD!

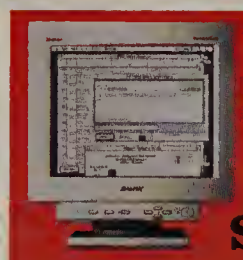
GLOBAL VILLAGE COMMUNICATION

28.8 V.34 Faxmodem

- The ONLY Macintosh faxmodem with Speed Enhancers
- Flash ROM upgradable
- Voice/fax call handling
- Award-winning *GlobalFax 2.5* and *GlobalFax OCR* software
- Fax scheduling and broadcasting
- High-quality output for detailed graphics

ONLY $199.95 20544

23483 PowerPort Platinum PC Card 28.8.....$349.95
23486 PowerPort Platinum Pro PC Card 28.8/10T..... 519.95



ONLY $449 25226

SONY

15" Multiscan® 15sx Trinitron Display

- 13.9" viewable image size
- Resolution up to 1280 x 1024 @ 60Hz
- Plug and play ready
- 0.25mm Aperature Grille Pitch
- 3 yr. warranty

COMMUNICATIONS

6115	Freesoft White Knight 12.0	$85.
11419	Hayes ACCURA 144+FAX144	99.95
16949	MDS FaxModem 28.8	149.95
4879	Practical Periph MC144MTII	89.95
23031	Prometheus CyberPhone 28.8	259.95
22159	QualComm Eudora Pro	59.95
18792	Radish Comm InsideLine	109.95
22236	Software Ventures Internet Valet	39.95
23286	SupraExpress Plus 28.8	164.95
17048	U.S. Robotics Sportster V.34 Fax	219.95
24238	Ventana Netscape Navigator/PE	44.95
17470	Zoom FaxModem V.34	169.95

MULTIMEDIA/VIDEO

19485	Altec ACS500 Speakers	$299.95
25826	IMS Twin Turbo 128M-4M PCI	599.
17314	Magnavox 14" Color Display	299.95
25623	Matrox MGA Millennium 4MB PCI	529.
25700	MagInnovision DX1795 17" Monitor	799.
25895	Number Nine Imagine 128-4M	799.
21797	Viewsonic 15ES 15" Monitor	569.

BUSINESS

13510	AEC FastTrack Schedule	$169.95
23995	Automatic Software Big Business	379.95
24055	Best!Ware Mind Your Own Busin	79.95
25478	Claris FileMaker Pro 3.0 Upg w/fonts	99.95
23160	ClarisWorks Upgrade after rebate	49.
16551	Microsoft Office for Mac 4.2 Upgd	279.95
16552	Microsoft Word 6.0 Upgrade	119.95
8010	Niles EndNote Plus	169.95
16548	Symantec ACT 2.5 Upgrade	49.95

UTILITIES

6740	Aladdin StuffIt Deluxe	$73.
20403	C & G Conflict Catcher 3 Upgrade	39.95
17537	Central Point MacTools Pro 4.0	99.95
12093	DataViz MacLink+ Translators Pro	95.
23130	Insignia SoftWindows PMac Upg	124.95
6925	Now Utilities	79.95
16860	Symantec Disk Doubler Pro 1.1 Upg	39.95
16323	Symantec Norton Utilities Upgrade	39.95
10312	Symantec SAM Upgrade	29.95
14918	Symantec Suitcase Upgrade	24.95

INPUT/OUTPUT

21197	Adesso TruForm Keyboard	$89.95
19814	Agfa Arcus II w/10 FREE film rolls	2195.
2374	CoStar LabelWriter XL+	239.95
23075	Epson Color Stylus II	399.
2499	GDT PowerPrint	99.95
24020	HP LaserJet 5L FS	499.
17589	Kensington Thinking Mouse	89.95
25697	Kensington Turbo 5.0	109.95
26232	Microtek ScanMaker E3	389.
16212	Mouse Systems MacPoint	24.95
23538	Okidata OL610E/PS Printer	799.
20770	UMAX BizCard Reader	239.
17779	Visioneer Mac PaperPort	269.
22422	Wacom ArtPad 2 + Dabbler	159.95

INTERNATIONAL CUSTOMERS

Please call 603-446-3333 or fax 603-446-7791. Additional charges & restrictions may apply.

Full line of PowerBook® Notebooks
800-800-MACs

OUR POLICY • VISA, MASTERCARD, AMERICAN EXPRESS, and DISCOVER cards. No surcharge. • All of our products are covered by manufacturer's warranty. • We are not responsible for typographical errors. • Pricing and promotions subject to change without notice.

Continental U.S.: Shipping Charges: $5 per order up to 10 pounds. On orders weighing 10 pounds or more, shipping is $1 per pound. Please call for weight/shipping charge information. Barring events beyond our control, all credit card orders phoned in weekdays by 3 a.m. ET will ship Airborne Express for delivery t next business day. (Some orders ship UPS Ground for next day delivery). Saturday delivery available many areas upon request at no additional charge. Order all day Saturday thru noon Sunday for Mond delivery. Some areas require an extra day delivery. **APO/FPO, International orders and Hawaii, Alask Canada, Puerto Rico & U.S. Virgin Islands:** Shipping may require additional time and charges. All oth areas: Call 603-446-3333 or FAX 603-446-7791 M-F 9 a.m.-5:30 p.m. ET

©1996 PC Connection, Inc., Marlow, NH. MacConnection & the raccoon characters are registered trademarks of PC Connection, Inc. All other trademarks remain the property of their respective compa

nection®

BCS THE BOSTON COMPUTER SOCIETY

Boston Computer Society declares MacConnection "Best All Around Company" 2 years in a row!

Berkeley Mac Users Group awards MacConnection "Best Mac Mail-Order Company!"

BMUG SPRING 1995 CHOICE PRODUCT

ST PRICING • BEST SELECTION • CUSTOM SYSTEMS OVERNIGHT!

Adobe Become a Photographer, Web Master & Illustrator!

PhotoDeluxe

- Features built-in templates to add in design
- Create amazing special effects; remove red eye
- 500 FREE photos, clip-art images and templates
- Versatile software guides you through every project

ONLY $89.95 25860

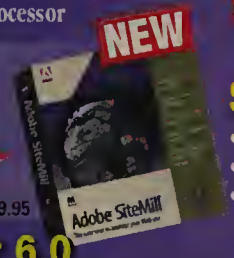
PageMill

- All-in-one page development for the World Wide Web
- Create high-quality, error free Web pages in no time
- WYSIWYG authoring/editing in a normal word processor

ONLY $99.95 24559

MACUSER EDITORS' CHOICE AWARD 1995 WINNER Best New Page-Design Product

PageMill to SiteMill Upgrade $299.95 26417



26416 SiteMill.....$389.95

SiteMill

- Advanced Web site management software
- Easy navigation, drag & drop link creation
- Powerful PageMill authoring/editing features

Illustrator 6.0

- Work with TIFF and other raster file formats
- Run Photoshop plug-ins within Illustrator
- Rasterized artwork in place
- Built-in color separations

Upgrade CD ONLY $98.95 26838

Authorized Catalog Reseller

HP DeskWriter 660C

- Crisp, clear text at up to 600 dpi, color at up to 600 x 300 dpi
- Exclusive HP Resolution Enhancement technology
- 16.7 million colors; HP ColorSmart
- Resident black and color ink cartridges
- 3-year HP warranty

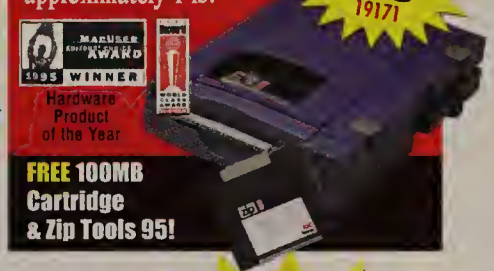
ONLY $379 21112

iomega ZIP DRIVE

Affordable & portable storage drive offers high capacity storage on inexpensive 100MB disks. Compact design weighs approximately 1 lb.

ONLY $199.95 19171

MACUSER EDITORS' CHOICE AWARD 1995 WINNER Hardware Product of the Year



FREE 100MB Cartridge & Zip Tools 95!

GRAPHICS

561	Adobe After Effects 3.0	$649.95
257	Adobe FrameMaker 5.0 CD	629.95
672	Adobe Illustrator 6.0	389.95
197	Adobe PageMaker 6.0	549.95
4471	Adobe Photoshop 3.04	569.95
4562	Adobe Premiere 4.2	499.95
4617	Auto F/X Photo Edges Vol.3	179.95
3011	Avid VideoShop 3.0	249.95
2788	Corel Gallery 2 CD-Mac	79.95
4535	Fractal Design Painter 4.0	379.95
0749	Fractal Design Poser	124.95
0046	Macromedia Design Studio	649.95
5087	Macromedia Director 4.0	819.95
4014	Macromedia FreeHand 5.5	399.95
509	MetaTools Kai's Power Tools 3.0	129.95
1423	MetaTools KPT Bryce	79.95
613	MetaTools KPT Convolver	129.95
342	Pantone Color Drive	145.95
4580	Ray Dream Design Studio	299.95
3296	T/Maker Incred. ImagePak *25,000*	49.95

NETWORKING

2583	Asanté FriendlyNet 10-T	$29.95
2775	Asanté Hub 8	145.
6701	Asanté MacCon-I 10-T	89.
24593	Dayna Communicard 10-T PC Card	159.
21362	DaynaPORT Enet LCCommSlot	79.
23492	Farallon AirDock IR Adapter	69.
11499	Farallon EtherWave AAUI Trans	109.
1723	Farallon PN303 DIN-8 3 pack.	49.95
15490	Sonic 10Base-T Transceiver	33.95
16854	Sonic Micro Print/12	319.
22503	Sonic Quickstream/3	829.
14545	Timbuktu Pro-Mac	135.

EDUTAINMENT

18246	A.D.A.M. CD	$39.95
13509	Broderbund MYST CD	44.95
1720	Delorme Street Atlas USA CD	74.95
13714	Delta Tao Eric's Ult. Solitaire	34.95
21449	Lucas Dark Forces CD	49.95
3675	Starplay Crystal Caliburn	29.95
4764	Voudette FLOWERscape	49.95

STORAGE

22886	Apple External 850MB Drive	$399.95
9054	MDS Internal 1GB Drive	299.95
15950	MDS SyQuest 200MB Drive	399.95
26948	Pinnacle RCD 5040 Recordable CD	1295.
7070	SyQuest 200MB Cartridge	57.95

MEMORY AT THE LOWEST PRICES!
Ask about FREE installation!
800-800-6227

CALL TODAY! FREE Catalog Subscription

800-800-3333

OR FAX YOUR ORDER **603-446-7791**

496MW

We Specialize in Power Mac Systems for Graphic Professionals

Great Price,

Call for Mac Clones Pricing

Power MAcintosh 7200/75
8MB RAM, 500MB HD, CD-ROM drive, Monitor & keyboard sold separately.

- *Add 14" Color Monitor*
- *Extended Keyboard*

Complete system price $1,939
Lease for only $69/ month*

Power Macintosh 7500/100
16MB RAM, 500MB HD, CD-ROM drive Monitor & keyboard sold separately.

- *Add 15" Hitachi SuperScan Display*
- *Extended Keyboard*

Complete system price $3,119
Lease for only $114/ month*

Mac OS

PowerPC

Power Macintosh™ Systems, Software

Interactive Training CD's from Quay 2
17 different titles including QuarkXpress, Photoshop and Illustrator
$99 each

RasterOps® HITACHI

Hitachi SuperScan MC21
21" flat square CRT .28 dot pitch Black Matrix invar. Supports resolutions up to 1600 x 1200 at 85HZ

15" SuperScan MC15	$459
17" SuperScan MC17	$999
20" SuperScan MC20	$1499
New 21" SuperScan MC21HR	$2199

FWB® incorporated — PCI Ready

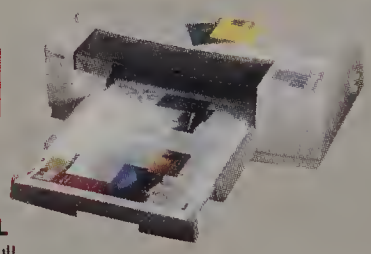
NEW PCI JackHammer	$399
NEW Hammer CD-R 2X	$1,549

We carry the full line of FWB products including Fast & Wide Disk Arrays, DATs and more. Call!

radius

PressView 21 SR, PressView 17 SR, ThunderColor PCI cards and more call!

EPSON
$1799



Epson Stylus Pro XL
Prints up to 12.5" x 18" full bleed in photo quality color

TRUEVISION

TARGA 2000 PCI
Professional digital video authoring and editing system.

Let us help you configure the ideal Digital Video System

The Express Advantage:

Expert Advice
We know our products & understand your applications. No order-takers here.

Free Tech Support
Call toll-free for as long as you own your Mac.

Top Products
We carry only the best products available that we've evaluated fc quality.

Business Leases
Flexible leasing options for qualifying businesses.

Fast Delivery
With FedEx & UPS, we ship promptly, based on availability.

4-Year On-site Extended Warranties.

Apple, the Apple logo, Macintosh,Macintosh Quadra and Power Macintosh are trademarks of Apple Computer, Inc. Prices are subject to change without notice. Mac pricing based on purchase of CPU with monitor. "Stand Alone" CPUs may be more. All returned order may be subject to a 15% restocking fee plus return shipping. Call for RMA before returning. Software, unless defective, cannot be returned after it has been opened. *Lease prices based on 36 month term with 10% purchase option. Call for complete details.

Expert Advice.

Power Macintosh 8500/120
16MB RAM, 1GB HD, CD-ROM drive.
Monitor & keyboard sold separately.

- *Add 17" Techmedia Display*
- *Extended Keyboard*

Complete system price $4,839
Lease for only $179 / month*

Power Macintosh 9500/132
16MB RAM, 1GB HD, CD-ROM drive
and 2MB video card.
Monitor & keyboard sold separately.

- *Add 20" Hitachi SuperScan Display*
- *EA Research EAsy Color 16/1600 accelerated PCI graphics card*
- *Extended Keyboard*

Complete system price $6,779
Lease for only $249/month*

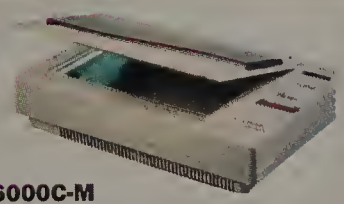
and Peripherals

UMAX
$749
New 1200 dpi

UMAX Vista S12
High-quality, 24-bit color, 600 x 1200 dpi, one pass scanning

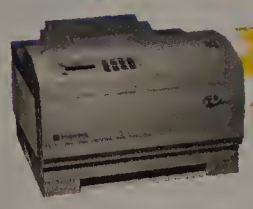
Vista S6	$529
Vista S8	$649
New PowerLook II with Pro Bundle	$3395
New Mirage with Pro Bundle	$6895
Choose your software bundle–	
Pro Bundle: *Full Photoshop KPTse*	$189
LE Bundle: *Photoshop LE & OCR*	$69

ARTEC
$359



ViewStation A6000C-M
2400 dpi resolution (600 x 300 optical).
Includes Photoshop LE and WordLinx OCR.

Dataproducts



Includes FREE Fax Modem

$4829

Typhoon 8 • 1200 DPI
1200 x 1200 dpi, 11" x 17" edge-to-edge printing, 36MB of RAM. Includes Free Fax modem (until 3/31/96).

Call to receive a FREE catalog!
1-800-765-0020

We stock a complete line of quality products from all of the above manufacturers & more.

1-800-765-0020

Order Toll Free M-Th 8am-7pm, Fri til 6pm, Sat 10am-2pm (CST) • 24 Hour Fax • Customer Service Hotline: **1-800-236-3059**

International Orders Shipped Daily
Fax: 312.244.3081 **Phone:** 312.244.3000

express direct
2720 North Paulina Avenue
Chicago, Illinois 60614

Circle 81 on reader service card

ProDirect 800-555-1256

Fax 24 hours a day 612-941-1109
International orders call 612-941-1805

Professional Service.....Manufacturer Direct Prices! √ NEW LOWER PRICES

Service•Performance•Price... ALWAYS ™

•NEVER A SURCHARGE!
• *NO SALES TAX!
• SAME DAY SHIPPING !
• EXCLUSIVE! 90 DAY PERFORMANCE GUARANTEE!

ASK ABOUT OUR 90 DAY PERFORMANCE GUARANTEE AND RECEIVE FREE SHIPPING ANYWHERE IN THE CONTINENTAL U.S.

- PowerStor™ active termination with the flip of a switch. **Constantly adjusts termination levels to your systems requirements.**
- Optional Fixed Daisy Chain Connector... Puts an end to your cable nightmares
- Exclusive On/Off switch Conveniently located on the FRONT of our cabinet.
- Power and drive activity light.

Seagate

1.2 GB Medalist (1080 MB Formatted)		$295	$355
11 ms Seek	5400 RPM	128 KBuffer	5 Year Warranty
2. 4 GB Hawk		625	695
9 ms Seek	5400 RPM	512K Buffer	5 Year Warranty
2.5 GB Barracuda 2		655	725
8 ms Seek	7200 RPM	1024K Buffer	5Year Warranty
4.3 GB Barracuda 4		1155	1225
8 ms Seek	7200 RPM	1024K Buffer	5 Year Warranty
2.5 GB Fast & Wide Barracuda		825	925
8 ms Seek	7200 RPM	1024 KBuffer	5 Year Warranty
4.3 GB Fast & Wide Barracuda		1175	1275
8 ms Seek	7200 RPM	1024K Buffer	5 Year Warranty
9.0 GB Elite		1925	2025
11 ms Seek	5400 RPM	1024 Buffer	5 Year Warranty
9.0 GB Elite Fast & Wide		2050	2150
11 ms Seek	5400 RPM	1024 Buffer	5 Year Warranty

90 Day Performance Guarantee on all Hard Drives... Call

FUJITSU

530 MB			$175	$235
9 ms Seek	4500 RPM	256K Buffer	3 Year Warranty	
1.2 GB (1080MB Formatted)			255	315
9 ms Seek	5400 RPM	512K Buffer	3 Year Warranty	
√ **2.1 GB**			$565	635
8.5ms Seek	7200 RPM	512K Buffer	5 Year Warranty	
4.2 GB			$855	925
8ms Seek	7200 RPM	512K Buffer	5 Year Warranty	

90 Day Performance Guarantee on all Hard Drives... Call

IBM

√ **540 MB DeskStar**			$175	$235
9 ms Seek	5400 RPM	128K Buffer	5Year Warranty	
1.2 GB (MR HEADS... FAST!) **DeskStar**			255	329
8.5 ms Seek	5400 RPM	512K Buffer	5 Year Warranty	
2.2 GB Ultrastar			755	815
8.5ms Seek	7200 RPM	1024K Buffer	5 Year Warranty	
4.3 GB Ultrastar			1325	1385
8ms Seek	7200 RPM	1024K Buffer	5 Year Warranty	
5.3 GB UltraStar			1345	1405
8ms Seek	5400 RPM	1024K Buffer	5 Year Warranty	

MAC Formatted capacities vary... Call our experts today!

90 Day Performance Guarantee on all Hard Drives... Call

Digital Tape Backup

HEWLETT PACKARD

2.0 GB		
5C5I 15MB/min., 4mm media,	$835	$895
3-5 GB		
5C5I 45MB/min., 4mm media,	940	995
4-10 GB		
5C5I 60MB/min., 4mm media,	1129	1189
24-48GB SC5I Auto Tape Loader	3195	3295
HP1553, 60MB/min., 4mm media		

Quantum DLT SCSI

Model	Capacity	Trans.Rate	Media	Price(Ext)
DLT2000X	30GB	2.5MB/sec	DLT20	4225
DLT4000	40GB	3MB/sec	DLT40	5899

ProDirect, Inc. 6824 Washington Ave. South Eden Prairie, MN

√ 8:00am-7:00pm (CST) Mon.-Fri.
10:00 am- 3:00 pm Saturday

HOT! SPECIALS

Quantum 127 MB Powerbook Drive	$99	$135
Q Daytona,4500RPM, 17 ms seek, 128K cache, 1 year warranty		
Quantum 341 MB Powerbook Drive	$175	$235
Q Daytona,4500RPM, 17 ms seek, 128K cache, 1 year warranty		
IBM 540 MB Powerbook Drive	$255	$315
IBM TravelStar12 ms Seek4900 RPM128K Buffer 1 Year Warranty		
IBM 1.2 GB DeskStar	$255	$315
IBM 1.2 GB, 5400RPM, 8.5 ms seek, 5 year warranty		
Fujitsu 2.1GB	$595	$655
F2915s, 7200RPM, 9ms seek, 5 year warranty		
Quantum Atlas 4 GB	$1199	$1259
Q34301, 7200, 8.6ms seek, 1024K cache, 5 year warranty		
Seagate 9.0GB	$1925	$2025
ST410800, 5400RPM, 11ms seek, 1024K cache, 5 year warranty.		

PCI/NUBUS FAST & WIDE ACCELERATORS

Atto Express PCI $345

Single channel RISC based PCI to Fast/Wide SCSI 3 accelerator card for Apple's PCI based computers. Ideal solution for your audio, video, prepress, and real time applications. Transfer rates up to 20MB/sec.Formatting software included.5 year warranty. Call for Disk Array Solutions! Also vailable in Dual Channel.

Atto Silicon Express 2 $425

SCSI 1 & 2 support,transfer rates up to 10.0 MB/sec.,supports multiple block sizes,takes advantage of parallel processing capability.Ideal for graphic design, multimedia applications and More!

Atto Silicon Express 4 $829

Fast/Wide 16BIT SCSI 2 accelerator card for Apple's Nubus based computers. Supports fast/wide SCSI 2 (16 Bit) transfer rates up to 20MB/sec. and fast SCSI 2 (B Bit) transfer rates up to 10 MB/sec. Full 16 Bit wide support for the latest drives and disk arrays. Fully compatible with all existing SCSI 1 drives. Formatting software is included.5 Year Warranty.

New! FWB JackHammer $465

Fast/Wide 16BIT SCSI 2 accelerator card for Apple's Nubus based computers. Supports fast/wide SCSI 2 (16 Bit) transfer rates up to 20MB/sec. and fast SCSI 2 (B Bit) transfer rates up to 10 MB/sec. Full 16 Bit wide support for the latest drives and disk arrays.

New! FWB PCI JackHammer $385

Single channel RISC based PCI to Fast/Wide SCSI 3 accelerator card for Apple's PCI based computers. Ideal solution for your audio, video, prepress, and real time applications. Transfer rates up to 20MB/sec.Formatting software included.5 year warranty. Call for Disk Array Solutions! Also vailable in Dual Channel.

REMUS Disk Array RaidLevel 0 & 1 $255

CD ROM & CD WRITERS

4x Pioneer CD ROM	$199
110 MS Seek 256 K CacheTray Design	
4 x 6 Disk PioneerCD ROM Changer	$455
4x Toshiba CD ROM	$235
150 MS Seek	
6x Toshiba CD ROM	$435
102 MS seek256 K Cache	
2x Yamaha CDE 1020	$1175
2x CD Writer• 4x CD ROM	
4 x Yamaha CDR 100	$2675
4 x CD writer•Multisession•Selectable Speed	

Prices are external and include all cables and software for a PLUG & PLAY Solution.

All prices are subject to change without notice. Returned orders are subject to a restocking fee. International customers pay all shipping charges. All shipping charges are non-refundable. To return merchandise call for an RMA number. All RMAs must be returned within 10 business days of issuance. Customers are responsible for shipping charges to return product.

CD ROM Special
Pioneer 4x• 110 MS ONLY $199 External

Quantum

√ **365 MB**			$125	$185
11 ms Seek	4500 RPM	128K Buffer	2 Year Warranty	
535 MB Performance !			175	235
9 ms Seek	5400 RPM	512K Buffer	5 Year Warranty	
730 MB Value!			169	229
11 ms Seek	4500 RPM	128K Buffer	2 Year Warranty	
850 MB Value!			195	255
11 ms Seek	4500 RPM	128K Buffer	2 Year Warranty	
√ **1080 MB** Fireball			235	295
10ms Seek	5400 RPM	128K Buffer	3 Year Warranty	
2.2 GB Capella			595	655
8.5ms Seek	5400 RPM	1024K Buffer	5 Year Warranty	
2.0 GB Atlas			685	755
8ms Seek	7200 RPM	1024K Buffer	5 Year Warranty	
4200 MB Grand Prix			985	1085
8.6 ms Seek	7200 RPM	512K Buffer	5 Year Warranty	
√ **4.3 GB Atlas**			1040	1110
8ms Seek	7200 RPM	1024K Buffer	5 Year Warranty	
Fast & Wide SCSI AV Drives				
2.0 GB Atlas			745	815
8ms Seek	7200 RPM	1024K Buffer	5 Year Warranty	
√ **4.3 GB Grand Prix**			1055	1155
8ms Seek	7200 RPM	512K Buffer	5 Year Warranty	

90 Day Performance Guarantee on all Hard Drives... Cal

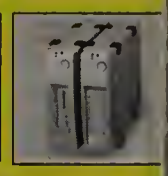
MICROPOLIS

√ **2.1 GB**	M4221		$599	$669
8.5 ms Seek	7200 RPM	512K Buffer	5 Year Warrar	
4.3 GB	M3243		935	1005
8.5 ms Seek	7200 RPM	512K Buffer	5 Year Warrar	
9.0 GB	M1991		1895	1995
10 ms Seek	5400 RPM	512K Buffer	5 Year Warrar	
AV Tuned Drives Best for Direct to Disk Recording Performa				
√ **2.1 GB**	M4221AV		649	719
8.5 ms Seek	7200 RPM	512K Buffer	5 Year Warrar	
4.3 GB	M3243AV		1005	1075
8.5 ms Seek	7200 RPM	512K Buffer	5 Year Warrar	
9.0 GB	M1991AV		1985	2085
11 ms Seek	5400 RPM	512K Buffer	5 Year Warrar	

90 Day Performance Guarantee on all Hard Drives... Ca

SCSI HARD DRIVE CABINETS

PowerStor™ 5.25" or 3.5" half ht open/closed bezel HD enclosure	$7
Minicab™ 3.5" open/closed bezel HD enclosure	$6
Full Height Cab 5.25" full height cab	$1
Multi Bay Cabinets 5.25" and 3.5" cabinets available	$C
Two, four, six, and eight bay cabinets available All cabinets come with a 25-50 pin Mac system cable and a power ca warranty on all cabinets	
Multi Bay Rack Maunt 5.25" and 3.5" cabinets available	$C
Two, four, six, and eight bay cabinets available All cabinets come with a Mac system cable and a power cable. 1 year on all cabinets	



Pinnacle Micro

Pinnacle RCD 5020 2 x CD Writer	$123
Combination 2x CD Writer, CD ROM 1MB Cache	
Pinnacle RCD 5020M 2 x CD Writer w/Toast SW	$141
Combination 2x CD Writer, CD ROM 1MB Cache	
Pinnacle Apex 4.6GB Optical Hard Disk	$157
17 MS Seek, 1024K Cache, ISO /ANSI Standard	
Pinnacle 4.6 GB Media	$185
1024 K Sector	

All drive complete with 1 piece of media and driver software

VISA MasterCard DISCOVER NOVUS

Circle 135 on reader service card

ACIE
MITED

offers a world of storage solutions

Ready to Plug And Play

La Cie Storage Utilities FREE!*

Featuring TSUNAMI HARD DRIVES

- Ready to plug and play with switchable active termination, cables, and La Cie Storage Utilities.
- High-speed drive and disk-controller technology.
- Up to 4.3GB capacity in a 6.5"x8.5"x2.2" compact case.

$269 Tsunami 850 MB

	850MB Quantum Trailblazer	5400 rpm	3 yr. warr.	$269
NEW!	1080MB IBM Pegasus	5400 rpm	3 yr. warr.	$319
NEW!	1280MB Quantum Fireball	5400 rpm	3 yr. warr.	$369
	2160MB Ultrastar ES	5400 rpm	5 yr. warr.	$669
	4.3GB Quantum Atlas	7200 rpm	5 yr. warr.	$1199

I.D. Magazine 40TH ANNUAL DESIGN REVIEW WINNER 1994

Industrial Design Excellence Award SILVER 1994

MACWORLD MW EDITORS' CHOICE

Best Value! INTERNAL HARD DRIVES

Special LOW Price

- High-performance drive and controller technology.
- Built-in SCSI interface.
- Formatted, tested and backed by Quantum warranties.

$599 IBM 2 GB

	850MB Quantum Trailblazer	5400 rpm	3 yr. warr.	$199
NEW!	1080MB IBM Pegasus	5400 rpm	3 yr. warr.	$259
NEW!	1280MB Quantum Fireball	5400 rpm	3 yr. warr.	$309
	2160MB IBM Ultrastar ES	5400 rpm	5 yr. warr.	$599
	4.3GB Quantum Atlas	7200 rpm	5 yr. warr.	$1149

Brackets available for $10 with internal hard drive purchase.

JOULE HARD DRIVES

- Share hard disk-sized files with diskette convenience.
- Docking provides new security and backup solutions.

$369 Joule 1 GB

3.5" Portable Hard Drives – Quantum

850MB Trailblazer	3 yr. warr.	$329
1080MB Fireball	3 yr. warr.	$369
2210MB Capella	5 yr. warr.	$799

Joule Bases – Supports Stacks Up To 6 Drives High

850MB Quantum Hard Drive	3 yr. warr.	$389
1080MB Quantum Hard Drive	3 yr. warr.	$429
230MB Optical	1 yr. warr.	$529
270MB SyQuest	1 yr. warr.	$479

Joule RAID

Quantum drives bundled with Trillium Research Software configurable to levels 0, 1, 4 & 5.		RAID Drives only	NEW! RAID with SCSI CARD
4.2GB	5 yr. warr.	$1999	$2299
8.4GB	5 yr. warr.	$3499	$3799
16.8GB	5 yr. warr.	$6999	$7299
25.8GB	5 yr. warr.	$9999	$10299

Call 1-800-999-1383

VISA MasterCard AMERICAN EXPRESS

* La Cie Storage Utilities FREE with the purchase of a La Cie Drive. Call for details, conditions, limited money back guarantee and free offers. Prices do not include shipping and only apply to products shipped within the continental United States. Add sales tax where applicable. Tsunami, Joule, Joule Portable, La Cie Term, Silvertining, La Cie and the La Cie logo are trademarks of La Cie Ltd. All other trademarks are the property of their respective companies. All prices, specifications, terms, warranties, descriptions, products and services herein are subject to change without notice or without recourse. © Copyright 1996 La Cie Ltd. All rights reserved.

LACIE LIMITED

now versatile storage solutions...

EZ135 MB Cartridges $19.95

INCLUDES FREE CARTRIDGE!

ALL NEW FROM SYQUEST EZ135 DRIVES

- EZ offers the lowest per-megabyte medio cost on the market.
- 13.5msec access time doubles ZIP's speed.
- The removable medio volue leader.
- Full 2 year worranty.

$229 SyQuest EZ135

Syquest		
200MB Internal	1 year warranty	$319
200MB External	1 year warranty	$369
200MB Cartridge		$79
270MB Internal	1 year warranty	$329
270MB External	1 year warranty	$399
270MB Cartridge		$59

CD-RECORDABLE DRIVES

NEW Product

- CD-Rs ship with Gear Multimedio softwore.
- Creote your own CD with fast write capobility.
- Low cost medio for bockup.

2X Read/Write $1099

CD-Recordables		
2X Read/Write		$1099
2X Read/Write Yamaha	NEW!	$1199
4X Read/Write Yamaha	NEW!	$2399

A $99 VALUE FREE WITH ALL LACIE DRIVES!

LACIE storage utilities

Includes acclaimed Silverlining disk management software plus four other vital performance enhancements!

OPTICAL and DAT

- Optical is the new standard in removable reliability.
- DAT – The ideal medium for data backup.

$1999 2.6GB Optical

Other Optical		
NEW! 230MB PowerBook Internal	1 year warranty	$399
230MB Internal	1 year warranty	$399
230MB External	1 year warranty	$469
230MB Optical Cartridge		$19.95
NEW! 2.6GB External	1 year warranty	$1999
2.6GB Optical Cartridge		CALL

DAT Drives Inc. Retrospect	Internal	External
8.0GB Internal DAT DDS-2	$799	$899
8.0GB Turbo DAT DDS-2	$1099	$1149

The Original!

APPLE EXTERNAL HARD DRIVES FROM LACIE LIMITED

The only hard drive backed with Apple engineering. For a local reseller or catalog resource call 1-800-999-0499.

Sold exclusively by these and other fine Authorized Apple Resellers:

CompUSA. Computer City MacConnection MacWarehouse The Mac Zone MacWarehouse Micro Center

LACIE LIMITED

Call Today: 1-800-999-1383

* Call for details, conditions, limited money back guarantee, and free offers. Prices do not include shipping and only apply to products shipped within the continental United States. Add sales tax where applicable. Joule, Joule Portable, La Cie Term, DataSafe Silverlining, La Cie and the La Cie logo are trademarks of La Cie, Ltd. All other trademarks are the property of their respective companies. All prices, specifications, terms, warranties, descriptions, products and services herein are subject to change without notice or without recourse. © Copyright 1995 La Cie, Ltd. All rights reserved.

30 BIT SCAN CLARITY FOR LESS

SILVERSCANNERS

LACIE LIMITED

Silverscanner III

MacUser BEST BUY

Silverscanner DTP

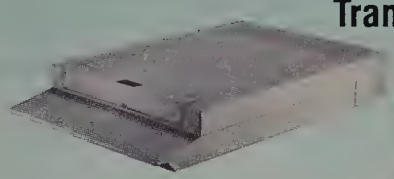
DRUM SCAN | 30 BIT SILVERSCAN

Compare these features:

- The industry's leading software.
- Operates in true 30-bit pixel depth.
- Scans in under a minute.
- Color previews in seconds.
- Captures over 1 billion colors.

Silverscanner DTP Complete
Desktop color, 400x800dpi interpolated to 3200 dpi.
- Photoshop LE
- Read-It Pro OCR
- Silverscan

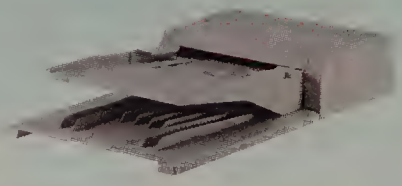
$899



Transparency Adapter **$799**

Silverscanner III Package 1
Pro color, 600x1200dpi interpolated up to 4800 dpi.
- Color II!
- Read-It Pro OCR
- Silverscan

$1499



Sheet Feeder **$499**

Silverscanner III Package 2
Pro color, 600x1200dpi interpolated up to 4800 dpi.
- Photoshop (full)
- Read-It Pro OCR
- Silverscan

$1799

Compare our drum beating color scans.

Friendly! Fast!

...more customer support

Toll-free tech line: 1-800-288-9919

30 Day Money Back Guarantee

1 Year Scanner Warranty

INSTANTLY SCAN BUSINESS CARDS INTO YOUR MAC.

VIP SCAN $199

NOW Contact™ FREE with La Cie VIP SCAN™

Scan names, addresses, phone numbers and logos for quick access, then export to your favorite contact management software.

Mon.– Fri. 5AM-7PM & Sat. 8AM-NOON PST
International 503-520-9000
Fax 503-520-9100 (24 hrs.)
http://www.lacie.com/~lacie

AMERICAN EXPRESS VISA MasterCard

Circle 52 on reader service card

The Mac Zone® Established 1986

your Macintosh® catalog SuperStore

Serving Mac users since 1986

FreeHand 5.0 to 5.5 Upgrade

Only $78.98 #87150

With FREE Paint Alchemy 2 & Terrazo from XAOS Tools – A $197 Value!

HOT! PRODUCT

Only $574.98 #88415

Tenon Intersystems

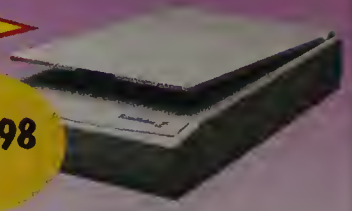
PowerMach Ten for Power Mac

Turn your Power Mac into an Internet server!

MICROTEK

Better Images Through Innovation.

NEW!



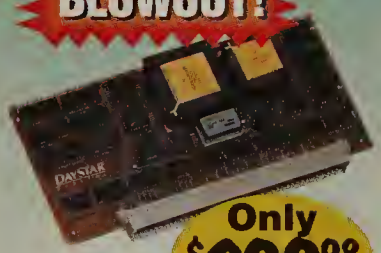
Only $399.98 #06673

ScanMaker E3

The affordable color scanner

EXCLUSIVE! BLOWOUT!

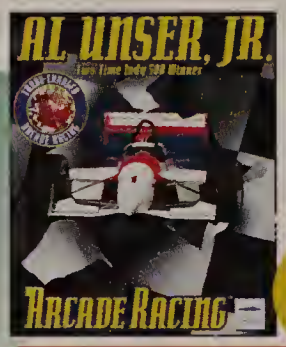
DAYSTAR DIGITAL



Only $299.98 #04322

Universal PowerCache 50MHz FPU

Give your 030 Mac Quadra speed!



Al Unser, Jr. with Advanced Gravis GamePad

Strap yourself in for the ride of your life!

Only $49.98 #88358

FREE Mac Pack II!

KENSINGTON

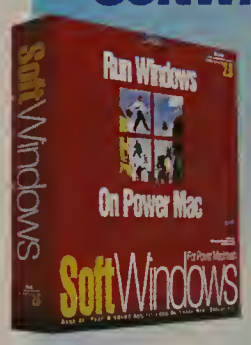
NEW!

Only $108.98 #87483

Turbo Mouse 5.0

The award-winning mouse!

SoftWindows 2.0



Only $198.98* #89315

*With purchase of any Power Mac. Low Mac Zone Price: $298.98

INSIGNIA SOLUTIONS

Only $2750* #86846

*With trade-in upgrade

Truevision®

TARGA 2000N

The full-screen, full-motion digital video and audio solution!

Microsoft

Encarta 96

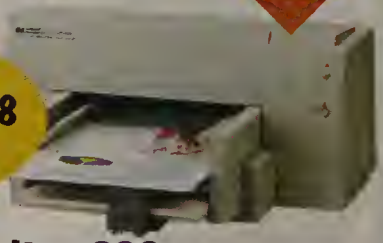
The fun family encyclopedia!

Only $48.98 #95750

HEWLETT® PACKARD

Authorized Value-Added Reseller

NEW LOW PRICE!



Only $238.98 #88902

DeskWriter 600

600 dpi Printer

Affordable inkjet printing at home!

Only $48.98* #91349

Extensis

DrawTools

A powerful collection of plug-ins for Illustrator and FreeHand!

*With purchase of FreeHand or Illustrator. Must be on the same invoice. Low Mac Zone Price: $98.98

NEW LOW PRICE!

Only $699.98 #92169

66MHz Turbo 601 for Macintosh IIci

8MB SIMMs Only $239.98

Call for details #06755

NEW!

ViewSonic® *See The Difference!™*

Only $698.98 #87259

ViewSonic17EA Multimedia Monitor

Before you buy, call The Mac Zone

1-800-436-0606

For the best Macintosh products at better than Warehouse and Superstore prices.

Fax (206) 603-2500 • International (206) 603-2550 • CompuServe code: GO MZ

CORPORATE SALES 1-800-258-0882 | GOVERNMENT SALES 1-800-372-9663 | EDUCATION SALES 1-800-381-9663 | INTERNATIONAL SALES 1-206-603-2570 | eWorld @MACZONE

© Copyright 1996 Multiple Zones International Inc. All rights reserved. The Mac Zone is a federally registered trademark.

Full Line of Apple Macintosh® Computers

- Over 5000 Products
- Overnight Delivery only $3* *Up to 10 lbs.
- The Hottest Bundles!
- Low Prices Everyday

Authorized Catalog Reseller

ORDER ANYTIME 24 HOURS A DAY 7 DAYS A WEEK

PowerWave 604 Mac Compatibles!

PowerPC™ performance for less!

- 120MHz PowerPC™ 604 microprocessor
- 8MB RAM, 1GB hard drive
- 4x CD-ROM drive
- 16-bit stereo sound
- Extended keyboard and mouse

NEW!

Monitor sold separately.

Only $2869

#86603

EXCLUSIVE! BLOWOUT!

CyberPort 14.4 Fax/ Modem

Only $49.98

Send data and receive faxes on your Mac!

#90234

Hundreds of dollars worth of preloaded software included with every PowerWave!

Sleepless in Seattle...

You bet! We're here 24 hours a day, 7 days a week to serve you when you need us.

1-800-436-0606

Call Today for Your FREE CATALOG!

Shop The Mac Zone ONLINE!

Online Shopping

Internet Address: http://www.maczone.com/maczone or to visit our store on marketplaceMCI: http://www.internetMCI.com/marketplace/mzone

eWorld type: MACZONE (under shortcut)

CompuServe type: GO MZ

The Mac Zone Trusted Internationally

- France – 33 14 688 4040
- United Kingdom – 44 1483 211 456
- Scandinavia – 45 86 11 8183
- Benelux – 31 20 626 2299
- Portugal – 351 1 387 4558
- Spain – 341 532 9042
- Middle East – 971 435 9800
- Israel – 972 279 6160
- Italy – 39 383 49879
- Mexico – 525 611 4646
- Colombia – 571 619 4000
- Venezuela – 582 952 7808
- Central America – 506 224 4444
- Hong Kong – 852 2851 1754
- Japan – 813 5454 7226
- Singapore/ Malaysia – 65 745 5558
- Indonesia – 62 21 530 4567
- New Zealand – 647 571 0980

Your Source Code **MW604**

Circle 71 on the reader service card

YES! START MY FREE 1-YEAR CATALOG SUBSCRIPTION ASAP!

☐ MAC ZONE ☐ PC ZONE ☐ the Home Computer Catalog

Name _____

Address _____ Apt _____

City _____ State _____ Zip _____

Mail to: The Mac Zone, 15815 SE 37th St., Bellevue, WA 98006-1800

I buy primarily for:
- _Home Use
- _Business Use
- _Work-from-Home Use

Your Source Code **MW604**

For current up to date pricing and custom configuration see our web-site at **http://www.wcn.com**

Tel: (800) 761-1999

BIGMAC a division of **WCN**

Kingston TECHNOLOGY CORPORATION

168 Pin DIMM Modules
For Power Mac 9500 to 7200

8/16MB	Call for
32/64MB	Best Pricing
256/512K Cache	109/159
1MB V-RAM	69

72 Pin SIMMS Modules
6100~8100, Quadra, Centris & Performas

8/16MB	Call For
32/64MB	Best Pricing

Power Book 500/5300/190

8/16MB	CAll FOR
32/64MB	Best Pricing

Prices as of January 25th 1996 Please call for Current pricing. Quantity discount available.

BIG MAC SPECIAL

5300	8/500	12
5300C	16/750	32
5300CE	32/1GB	49
5300CS	8/500	20
8500/120	16/1GB/CD	34
9500/132	16/1GB/CD/ATI	35
7200/75	8/500	10

WordPerfect for MAC & Power MAC $.

DAYSTAR DIGITAL

***DAYSTAR* Genesis MP $14295**
16MB RAM, 1GB H.D., 4xCD
Genesis MP runs Photo Shop 4 times faster than Apple Power MAC 9500. Using 4 PowerPC 604 Processor

ANY CUSTOM CONFIGURATION FOR AUDIO/VIDEO & DESK-TOP PUBLISHING

PERFORMA

6300	16/1GB/CD	2495
6200	8/1GB/CD	1699
6220	16/1GB/CD	1825
5215	8/1GB/CD	1899
640CD-DOS	12/500/CD	1525
631	8/500/CD	1399
630	8/350/CD	1275

POWERBOOK

150	4/240	750
190	8/500	1620
190CS	8/500	1889
5300CS	8/500	2090
5300CS	16/750	2750
5300C	8/500	3050
5300C	16/750	3295
5300CE	32/1GB	4995
5300	8/500	1299
520/520C	8/240//4/160	1350/1750

MONITORS

APPLE 14"/15" Hi-Res	345/369
APPLE 17"/20" Hi-Res	899/1899
APPLE 1705	695
APPLE 1710/1710AV	885/1035

DEMO MAC'S

8500/120	0/0/0	2250
8500/132	0/0/0	2795
9500/120	0/0/0	2595

Call for APPLE 3rd party products • *All prices reflect a cash discount, any other method of payment is 3% higher. International Orders, Visa, MC & AmEx Welcome • Next Day Shipping for U.S.A. & International. Prices are subject to change w/o notice & Limited Quantity*

POWER MAC'S

7200/75	8/500 w/o CD	1025
7200/75	16/1GB/CD	1699
7200/90	8/500/CD	1399
7200/90	16/1GB/CD	1599
7200/90	0/0/0	1290
7500/100	0/0/0	1950
7500/100	16/500/CD	2475
7500/100	16/1GB/CD	2595
7500/100	32/2GB/CD	3375
7500/120	16/2GB/CD	3695
8500/120	16/1GB/CD	3495
8500/120	32/2GB/CD	4395
8500/120	16/2GB/CD	3995
8500/120	80/2GB/CD	5850
8500/120	0/0/0	2695
8500/132	16/1GB/CD	4295
9500/120	80/1GB/CD	4595
9500/120	16/1GB/CD	3295
9500/132	16/1GB/CD	3595
9500/132	0/0/0	2795
9500/150	COMING UP IN MAR	CALL
6100/66	8/500/CD	1350
7100/80	8/500/CD	1595
7100/80AV	16/700/CD	1899
8100/100	8/700	CALL
8100/100AV	16/1GB/CD	CALL
8100/110	16/2GB/CD	2850

WORKGROUP SERVE

6150/60	8/500/CD/AS
8150/110	16/2GB/CD/DAT
8150/110	16/1GB/CD(www)
9150/120	16/2GB/CD/ DAT(www)

Apple Share 4.0.2

PRINTERS

APPLE LASER 4/600
APPLE LASER 16/600
APPLE LASER 12/600
APPLE LASER 360
APPLE COLOR Style Writer 240

FACTORY REFURBISH

QUADRA 800/840AV 8/230
QUADRA 650 8/230
PERFORMA 466 4/160

APPLE PARTS

8500 LOGIC BOARD
9500 LOGIC BOARD
650/800/950 Logic Board 750/59
8100/80 LOGIC BOARD
120/130Mhz PROCESSOR 799/
SUPER FLOPPY
POWER SUPPLY/CASES FOR ALL
ATI XCLAIM PCI VIDEO CARD

Trade Your Old MAC 4 The New POWERMAC

TEL: (800) 761-1999 • FAX: (310) 235-17
TEL: (310) 235-1780 • http://www.wcn.c
1831 PONTIUS AVE., LOS ANGELES, CA 90

WHY PAY RETAIL? CDW SELLS FOR LESS

CDW® is an Apple® Authorized Catalog Reseller

Our catalog features a full line of Apple® Power Macintosh®, Performa® and PowerBook® computers plus Macintosh-compatible peripherals and software.

Authorized Catalog Reseller

CALL for your FREE subscription today!

PRINTERS

$65 PRICE DROP!

HEWLETT PACKARD

DeskWriter 600

True 600 dpi inkjet printer

✔ Crisp monochrome output at up to 600 x 600 dpi ✔ 1 ppm print speed at 600 x 600 dpi, 4 ppm at 300 x 300 dpi ✔ 3 year warranty

$232.93 CDW 57118

EPSON®

Stylus Color Pro XL

Print on paper as large as 13" x 19"!

✔ Maximum resolution: 720 x 720 dpi in black or color on plain paper with Microdot technology ✔ Print speed: 3 ppm black printing, 1 ppm color printing ✔ Paper sizes: 13" x 19", ledger (11" x 17"), letter, legal, A4, B5, statement, executive ✔ 2 year warranty

$1799.00 CDW 61283

SCANNERS

MICROTEK

Better Images Through Innovation.

NEW!

ScanMaker E3

Affordable color flatbed scanner

✔ Resolution: 300 x 600 dpi (optical), 1200 x 1200 dpi (interpolated) ✔ 24-bit color (16.7 million colors), 8-bit grayscale (256 levels) ✔ Single-pass scanning ✔ Legal-size scanning bed (8.5" x 13.5")

$379.77 CDW 63624

UMAX®

Vista-S6 MACLE2

The speed you need and the quality you expect

Resolution: 300 x 600 dpi (optical), 4800 x 4800 dpi (interpolated) Selectable 24-bit color, 8-bit grayscale or black and white scanning Single-pass, single light source with cold cathode lamp

$563.33

CDW 61[illegible]9

EPSON®

ActionScanning System II

Supercompact color flatbed scanner

NEW!

Resolution: 300 x 600 dpi (optical), 2400 x 2400 dpi (interpolated) 24-bit RGB color and 256 grayscale scanning One-pass or three-pass scanning Maximum document size: 8.5" x 11.7" 1 year limited warranty, 2 years with registration card

$479.78

CDW 61[illegible]

U.S. Robotics

The Intelligent Choice in Data Communications

Sportster V.34 PC Card with DataView

$284.73

CDW 62820

NEW!

Turn to page 5 of our ad for more communications values!

If you find a better price, call CDW® before you buy!

(800)509-4CDW(4239)

MW1608

©1996 CDW® Computer Centers, Inc.

COMPUTER DISCOUNT WAREHOUSE™

MacWorld 4/96

CDW CIRCLE OF SERVICE®

HARDWARE, PERIPHERALS AT DISCOUNT

COMPUTER DISCOUNT WAREHOUSE™

MONITORS

SONY

NEW!

Multiscan® TC
Cutting-edge 20" Multiscan Trinitron® display
$3258.63 CDW 58544

SONY

NEW!

17sfII speakers sold separately
17" Multiscan Trinitron® display
$1797.50 CDW 63594

NEC

NEW!

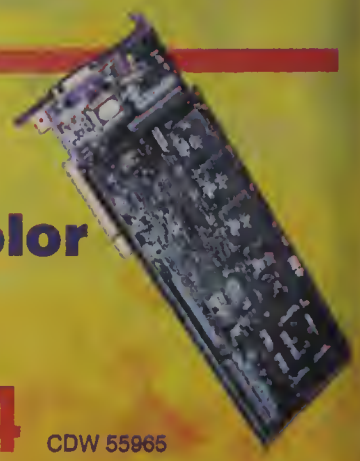
XV 15+
15" flat square color display
$494.64 CDW 63828

VIDEO CARDS

XCLAIM™ GA
True color graphics accelerator for your PowerMac™
$458.17 CDW 55980

ATI TECHNOLOGIES INC

radius
ThunderColor 30/1600
PCI graphics card
$1899.64 CDW 55965



DATA STORAGE

FWB incorporated

HammerCD-R™
Double-speed CD-ROM recorder

HammerCD-R subsystems have been engineered for the most demanding applications, including in-house corporate publishing, pre-mastering, digital audio and video, data distribution, multimedia and archiving.

$1429.84 CDW 61408
Quad-speed model also available.

NEW! at CDW!

NETWORKING

NEW!

Farallon®

Air Dock
Infrared connector for PowerBook 5300 and 190s

Just plug AirDock into your Mac desktop to make a cable-free connection with the built-in infrared window on your PowerBook 5300 or the optional infrared window on your PowerBook 190.

$64.84 CDW 60783

Call for a FREE CDW® Catalog!

(800)509-4CDW(4239)

MW1608

©1996 CDW® Computer Centers, Inc.

Most orders ship the same day!

If you find a better price, call CDW® before you buy!

& SOFTWARE PRICES

If you find a better price, call CDW® before you buy!

SOFTWARE FOR EVERY NEED!

Adobe

NEW!

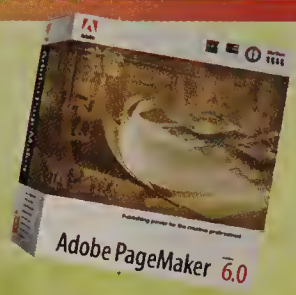
Adobe Illustrator V6.0

Feel the ultimate power of the premier image-editing tool!

Upgrade V5.X to V6.0 (3.5" + CD)

$115.09 CDW 64085

Full version (3.5" + CD)
$363.56 CDW 64089



NEW!

Adobe PageMaker V6.0

The world's leading professional page layout software

Version upgrade

$144.99 CDW 57782

Full version (3.5" + CD)
$546.32 CDW 57017

Adobe PageMill™ V1.0

NEW!

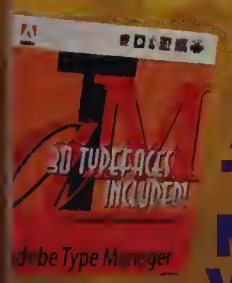
$95.22 CDW 61992

Adobe Photoshop V3.0.5

Version upgrade

$159.71 CDW 57786

Full version (3.5" + CD) **$546.32** CDW 47958



Adobe Type Manager™ V3.8

$39.16 CDW 44012

Adobe After Effects V3.0

$631.99 CDW 61991

CLARIS

FileMaker Pro V3.0

Relational database power!

Version upgrade

NEW!

$94.47 CDW 63951

INSIGNIA SOLUTIONS

NEW!

Full version ..... **$179.99** CDW 63817

SoftWindows V2.0 for PowerMacintosh

Run Windows applications on your PowerMac!

Full version, with CPU purchase

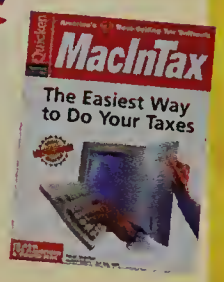
$183.65 CDW 64066

Full version
$282.01 CDW 64062

Version upgrades also available.

Intuit

NEW!



MacInTax 1995 Federal Final Edition

Get ready for tax time!

caere

NEW!

$42.00 CDW 64736

Caere OmniPage Pro V6.0

The essential Macintosh scanner companion

Version upgrade

COMPUTER DISCOUNT WAREHOUSE™

$2.99 shipping on all orders $200 or less!

(800)509-4CDW(4239)

MW1608

©1996 CDW® Computer Centers, Inc.

Turn the page for more savings!

TOP SELLING MACINTOSH SOFTWARE

COMPUTER DISCOUNT WAREHOUSE™

Apple® Internet Connection Kit

All-in-one solution for Internet connection

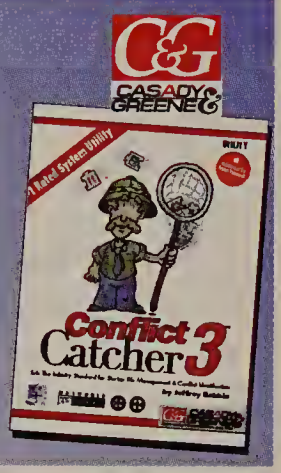
Authorized Catalog Reseller

$43.93 CDW 58671

◆ Apple® Internet Dialer ◆ Netscape Navigator for surfing the Web ◆ Email software ◆ Fetch and Anarchie FTP software ◆ Aladdin Stuffit Expander ◆ NewsWatcher for newsgroup discussions ◆ NCSA Telnet terminal emulation software ◆ SLIP/PPP for modem connection ◆ QuickTime VR Movie Player ◆ Adobe Acrobat Reader ◆ Apple Guide on-line help

Conflict Catcher 3

Conflict Catcher 3, the upgrade to multiple-award-winning Conflict Catcher II, offers an intelligent, complete solution to dealing with startup file conflicts and management. Conflict Catcher offers a quick, walk-through startup file conflict test with the ability to test existing software. Other features include the creation of sets, linked startup files and a detailed System Report.



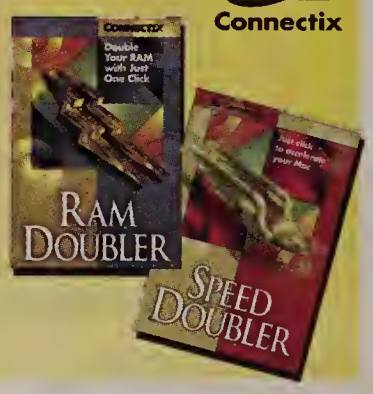
Version Upgrade	**$31.34**	CDW 53648
Competitive Upgrade	**$31.32**	CDW 53649
Conflict Catcher 3	**$59.46**	CDW 53335

PowerMac™ PowerPack

RAM Doubler V1.6/Speed Doubler V1.1

Connectix

Get two incredible utilities at one nifty price with Connectix's PowerMac PowerPack. RAM Doubler is a system extension that gives you extra memory to run all of your favorite software. Speed Doubler accelerates your Mac without the expense or hassle of upgrading your hardware*.



$75.16 CDW 64073

**System requirements apply, call CDW today for more information.*

Emailer

The complete email solution for Macintosh

CLARIS

Claris Emailer™ is the fast, flexible, easy way to manage all your email. Whether you are using the Internet, America Online, CompuServe, eWorld or RadioMail, Claris Emailer lets you send, receive, reply, forward and store all your email messages and files quickly and easily.

$55.99 CDW 57391

Adobe

Adobe Photoshop V3.0.4 LE upgrade	221.51
After Effects V3.0	631.99
Dimensions V2.0	124.56
Gallery Effects Vol. 1	97.63
Illustretor V6.0 (3.5" + CD)	363.56
Illustretor V6.0 upg 3.X to 6.X (3.5" + CD)	122.99

SYMANTEC.

Act! V2.5

$148.32

CDW 60116

Illustrator V6.0 upg 5.X to 6.X (3.5" + CD)	115.09
PageMaker V6.0 (3.5" + CD)	565.79
PegeMaker V6.0 5 user peck	2166.06
PageMaker V6.0 upgrade	144.99
PageMill V1.0	95.22
Persuasion V3.0.2	241.58
Photoshop V3.0.5	546.32
Photoshop V3.0.5 vers upg	159.71
Premiere V4.0	485.28
Streamline V3.0	123.45
Type Basics	119.72
Type Manager V3.8	39.16
Apple® Fun and Learning CD pack	45.30
Apple® Home Office Collection	89.07
Apple® Internet Connection Kit	43.93
Apple® Small Business Collection	134.50
Apple® System 7.5 upgrade	96.40
Apple® System 7.5 upgrade CD	96.40
Ares Font Hopper	39.53
Avery MacLabel Pro	45.30

Broderbund

Carmen Sandiego/World Deluxe	39.72
Carmen Sandiego/World Deluxe CD	45.08
In the 1st Degree CD	47.47
Learn the Art of Magic CD	35.08
MYST CD-ROM	48.81
The Amazing Writing Machine	36.38
The Printshop Deluxe CD Ensemble	72.51
Typestyler V2.0	124.54
Welcome To The Future CD	42.59

Caere

Caere OmniPage Direct V2.0	58.51
Caere OmniPage Pro V6.0	436.98
Caere OmniPege Pro V6.0 upgrade	135.72
Caere OmniPage V5.0	295.68
Caere OmniScan	295.79

Casady & Greene

Conflict Catcher 3	59.46
Conflict Catcher 3 comp upgrade	31.22
Conflict Catcher 3 vers upgrade	31.34

Claris

Claris Emailer	55.99
Claris FileMaker Pro V3.0	179.99
Claris FileMaker Pro V3.0 upgrade	94.47
Claris Impact V1.0	136.40
ClarisDraw V1.0	245.64
ClarisOrganizer V1.0v2	46.34
ClarisWorks V4.0	118.22
ClarisWorks V4.0 CPU bundle	64.60
ClarisWorks V4.0 vers/comp upgrade	65.28

Connectix

PowerMac PowerPack/RAM & Speed Doubler	75.16
RAM Doubler V1.5	53.98
Speed Doubler V1.1	55.50
VideoPhone (softwere only)	55.59

MetaTools Kai's Power Tools 3

$111.52

CDW 60875

Corel

Corel Gallery 1	33.55
Corel Gallery 2	64.53
Corel Stock Photo Library	682.55
CA Cricket Graph III V1.53	87.20

Delrina

DelrinaFax PRO V1.5.1	52.45
Dataviz MacLink+/PC Connection	115.36
Datawatch Virex V5.5	59.47
DCA Crosstalk	112.48
Deneba Canvas V3.5 + CD	252.09
Diskfit Direct V1.0	29.42

Entertainment

A.D.A.M. Nine Month Miracle CD	32.42
A.D.A.M. The Inside Story CD	32.71
Berkeley After Dark V3.0	29.45
Berkeley Disney Screen Saver	27.62
Berkeley Star Trek Screen Saver	28.03
Bungie Marathon	36.72
Bungie Marethon 2: Durandal	42.49
Bungie Marathon CD	37.07
Electronic Arts PGA Tour Golf II CD	39.90
Maxis SimAnt	18.01
Maxis SimCity 2000	38.72
Maxis SimCity Classic	23.91
Paramount Jump Raven CD	25.09
Star Trek:TNG Interactive Tech Manual CD	38.49
Virgin 7th Guest CD	42.17

Fractal Design

Dabbler V2.0	42.63
Painter V4.0	332.28
Painter V4.0 upgrade	119.71
Poser V1.0	89.76
Sketcher V1.0	48.10

FWB

CD-ROM ToolKit™ V2.0	49.28
Hard Disk ToolKit™ V1.8	117.39
RAID ToolKit™	293.81
Farallon Timbuktu Pro V1.0	126.96
Framemaker V4.0	557.48

Insignia

SoftWindows for Performa	165.06
SoftWindows V2.0/PowerMec	114.09
SoftWindows V2.0/PowerMac CD	289.23
SoftWindows V2.0/PowerMec upg	282.01
SoftWindows V2.0/PowerMac upg CD	112.90

Intuit

Intuit MacInTax 1995 Federal Final Edition	42.00
Intuit Quicken Deluxe V6.0 CD	58.86
Intuit Quicken V6.0	44.32

MacPlay

Alone in the Dark	34.61
Battlechess	18.13
Ceesars Pelace	19.63
Frankenstein CD	46.94
Mac 4 Pak CD	25.14
Mac Gift Pack	36.49
Mario Teaches Typing CD	29.53
Peter Gabriel XPLORA 1 CD	31.70
Wolfenstein 3D	36.78

MetaTools (HSC)

KPT Bryce V1.0	72.28
KPT Convolver V1.0	113.76
KPT Vector Effects V1.0	115.09
Live Picture V2.0	478.89
Power Photos	111.52
Power Photos II	111.52
Kai's Power Tools 3	111.52

WordPerfect
Novell Applications Group

WordPerfect V3.5 Upgrade

$79.31

CDW 57383

Microsoft

Arcade V1.0	25.57
Bookshelf	46.69
Cinemania 1995 CD	49.10
Encarta 1994 CD	85.26
Excel V5.0	291.35
Excel V5.0 upgrade	112.22
Flight Simulator V4.0	41.18
FoxPro V2.6	89.97
Microsoft Office V4.2.1 CD	438.68
Microsoft Office V4.2.1 vers upg, CD	259.09
Office V4.2.1	438.68
Office V4.2.1 vers upgrade	259.34
PowerPoint V4.0	291.35
PowerPoint V4.0 upgrade	112.86
Project V4.0	413.94
Project V4.0 upgrade	132.83
Word V6.0.1	289.82
Word V6.0.1 vers upgrade	113.76
Works V4.0	46.94

Macromedia

Director V4.0	815.04
Fontographer V4.1	308.25
FreeHand V5.5 vers upg V4.0 or eerlier	138.46
FreeHand V5.5 vers upg V5.0 to V5.5	75.72
FreeHand V5.5 vers upgrade	375.29
Graphic Design Studio bundle	619.57
MacroModel V1.5	174.48
SoundEdit 16 V1.0	264.89

Novell

WordPerfect V3.5	117.10
WordPerfect V3.5, CD	119.56
WordPerfect V3.5, vers upgrade	79.31
WordPerfect V3.5, vers upgrade, CD	82.16

NOW Software

Now Contact/Up to Date V3.5 bundle	85.64
Now Up to Date V3.5	59.58
Now Utilities V5.0	66.54

PRO CD

Direct Phone	69.87
Home Phone	33.01
Select Phone 1996 WIN/MAC CD	84.59

Quark

Quark XPress V3.32 CD	639.75

Strata

Instant Replay V1.0	89.98
Media Paint V1.0	406.37
Studio Pro BLITZ V1.75	809.39
Vision 3D V4.0	139.87

Symantec

ACT! V2.5	148.32
MacTools Pro V4.0	89.98
Norton Utilities V3.2	95.22
SAM AntiVirus V4.0	64.93
Suitcase V2.1	59.60

Virtual Reality

Virtual Reality Vistapro V3.0	49.93
Virtual Reality Vistapro V3.0 CD	59.53

If you find a better price, call CDW® before you buy (800) 509-4CDW

NASDAQ

BUY WITH CONFIDENCE
CDW® IS A
NASDAQ TRADED COMPANY
TICKER SYMBOL CDWC
D & B rated 5A1 Duns 10-762-7952

No surcharge for credit cards

VISA DISCOVER MasterCard

Credit Card charges are not submitted until time of shipment. Freight is calculated as the carrier's actual freight charge plus insurance and packaging materials. The cost of insurance is 0.35% (0.0035) of the order total. Packaging materials will not exceed $4.00 per 1 package order or $6.00 per multi-package shipment. For your protection we ship only to your verified billing address. Non-defective returns subject to restocking fee. Allow 10 business days for shipping when paying by personal check. Software, chips and other electronic components are not returnable. All pricing subject to change ™ - Trademarks of all companies listed in this ad.

CDW®
TELEPHONE HOURS
Sales 7:00 -9:00 CST Mon-Fri.
9:00-5:00 CST Sat.
Tech Support for Customers
8:00-7:00 CST Mon-Fri.
9:00-5:00 CST Sat.

Call for your FREE CDW® catalog today!

MacWorld 4/96

GET CONNECTED WITH A MODEM FROM CDW®

CDW

COMPUTER DISCOUNT WAREHOUSE™

Monitors

NEC

XV15 Plus 15" flat square	494.64
XV17 17" flat square	744.26
XE15 15" flat square	574.79
XE17 17" flat square	999.50
XE21 21" flat square	1769.26
XP17 17" flat square	1024.64
XP21 21" flat square	2148.74

MAGNAVOX

CM2080 14" .29mm	254.31
CM4015 15" .28mm	375.84
CM4018 17" .28mm	669.25
20CM64 20" .31mm	1087.09

Samsung

15GLi 15"	469.00
17GLi 17"	749.00
17GLsi 17"	949.00

SONY

15sf II 15" Trinitron	499.94
17sf II 17" Trinitron	877.30
20sf II 20" Trinitron	1797.50
Multiscan TC 20" Trinitron	3258.63

Radius

PrecisionView 17 17"	923.78
SuperMatch 17 XL 17"	689.04
PressView 17 SR 17"	1949.34
PressView 21SR 21"	3146.75
PrecisionView 21 21"	2189.33

Graphics/Video Boards

ATI

Xclaim GA 2MB PCI	349.91
Xclaim GA 4MB PCI	458.17
Xclaim GA 2MB VRAM upgrade	237.97

Diamond Technologies

Javelin 3240XL 2MB PCI	333.97
Javelin 3400XL 4MB PCI	478.71
Javelin 2MB VRAM upgrade	178.74

Radius

Thunder 30/1600	1147.55
Thunder 30/1152	779.00
ThunderColor 30/1600	1899.64
ThunderColor 30/1152	1535.19
PrecisionColor 8/1600	458.97

Networking

Allied Telesyn

Microcom Transceivar AAUI TO 10BT	36.37
Microcom Transceiver AAUI TO 10B2	36.37
Microcom Transceiver AAUI TO fiber ST	159.93
Microcom Transceiver AAUI TO fiber SMA	168.97

Dayna

Bluestreak NuBus adapter	309.05
Bluestreak PCI adapter	199.98
Bluestreak 100BTX Hub	1589.32

Farallon

Air Dock Infrared connector	64.84
FastEther TX 10/100 NuBus	319.63
FastEther TX 10/100 PCI	234.71
Ether10-T Starlet/4 hub	116.96
Ether10-T Starlet/8 hub	139.61
Ether10-T Starlet/16 hub	418.89

Communications Modems

FastMac™

FastMac™ 28.8 V.34	137.98

Global Village

PowerPort fax/modems

Mercury 19.2K/PowerBook 5XX	319.89
Platinum V.34	325.96

PowerPort PC Cards

PowerPort Gold PC Card	174.87
PowerPort Platinum PC Card	334.82
PowerPort Platinum Pro PC Card	497.63

Teleport fax/modems

TelePort Gold II 14.4K	104.71
TelePort Platinum V.34	194.73

Megahertz

14.4K CruiseCard with XJACK	139.78
28.8K CruiseCard with XJACK	289.69

MOTOROLA

Lifestyle 28.8 external	199.99
Power 28.8 external	254.78

PRACTICAL PERIPHERALS

14.4 external mini-tower w/fax	78.30
28.8 V.34 external mini-tower w/fax	167.78
MacClass PCMCIA 14.4	154.84
MacClass PCMCIA 28.8	269.78

Supra

Express 14.4 Plus	94.89
Express 288	154.74
288 V.34	209.80
144PB PowerBook	156.93

U.S. Robotics

Mac&Fax Sportster 14.4	111.41
Mac&Fax Sportster 28.8 V.34	197.89
Sportster 28.8 V.34 PCMCIA	284.73

Storage Systems

CD-ROM DRIVES

NEC MultiSpin 6XE	515.86
Sony quad-speed external	312.72

FWB

HammerCD 2X CD-ROM recorder	1429.84
HammerCD 4X CD-ROM recorder	2912.43
PocketHammer 2000FMF	1045.64
PocketHammer 2050FMF	1311.53
PocketHammer 4100FMF	1769.54
PocketHammer H2000PE	1019.26

iomega

Zip drive 100MB SCSI external	199.00
100MB Zip disk	19.95
100MB Zip disks, 3 pack	49.95
100MB Zip disks, 10 pack	149.95

SyQuest

EZ135 external SCSI	229.90
135MB EZ135 cartridge	21.49

Magnetic media

88MB SyQuest cartridge, 5yr	49.98
200MB SyQuest cartridge, 5yr	75.32
270MB SyQuest cartridge, 5yr	64.38
150MB Iomega Bernoulli cartridge	92.60
230MB Iomega Bernoulli cartridge	99.81

Need more disk space? CDW carries Conner, IBM, Maxtor, Micropolis and Seagate SCSI hard drives. Call for details.

Input Devices

ALPS

Portable GlidePoint	57.14
Desktop GlidePoint	71.88
GlidePoint Keypad	107.84
GlidePoint Keyboard	114.97

ADESSO

PowerMouse	18.79
Soft Touch Plus extended keyboard	46.99
Tru-Form extended keyboard	89.77
Tru-Form extended keyboard w/pointer	99.98

Connectix

QuickCam digital video camera	93.95
VideoPhone w/Quick Cam	147.31

EPSON

Action Scanning System II	479.78
ES-1000C color flatbed scanner	737.77
ES-1200C color flatbed scanner	954.67
ES-1200C ProMAC color flatbed scanner	1122.02

Microtek

ScanMaker E3	379.77
ScanMaker IISPX	639.38
ScanMaker IIHR w/Photoshop	724.72
ScanMaker IIHR w/Color It!	573.78
ScanMaker III	1979.27

Nikon

Super CoolScan film scanner	1979.79
Coolscan film scanner	1289.73

Polaroid

SprintScan film scanner	1529.87

RELISYS

Scorpio Infinity	406.53
Taurus Infinity	679.59

UMAX

Vista-S6 MACLE2	563.33
Vista-S6 MACPRO2	658.64
Vista-S8 MACLE2	664.58
Vista-S8 MACPRO2	774.61
PowerLook MACPRO2	1899.73

Visioneer

Visioneer Paper Port VX	356.89

Printers

EPSON

Stylus Color II	399.00
Stylus Color Pro	599.00
Stylus Pro XL	1799.00

HEWLETT PACKARD

DeskWriter 600	232.93
DeskWriter 660C	399.87

TEXAS INSTRUMENTS

microLaser 600	855.71
microLaser Pro/8	1144.87
microLaser PowerPro/12	1399.91

Memory

Simple Technology memory upgrades

Power Mac 9500 8500 7500 8MB	CALL!
Power Mac 9500 8500 7500 16MB	CALL!
Power Mac 8100 7100 6100 8MB	CALL!
Power Mac 8100 7100 6100 16MB	CALL!
Power Mac 8100 7100 6100 32MB	CALL!
Quadra/Centris 610 Performa 630/631 4MB	CALL!
Quadra/Centris 610 Performa 630/631 8MB	CALL!
Quadra/Centris 610 Performa 630/631 16MB	CALL!
Powerbook 520 520c 540 540c 4MB	CALL!
Powerbook 520 520c 540 540c 8MB	CALL!
Powerbook 520 520c 540 540c 16MB	CALL!
LaserJet 4M Plus 4MB	CALL!
LaserJet 4M Plus 8MB	CALL!
LaserJet 4M Plus 16MB	CALL!

If you don't see it, call! CDW carries the complete Simple line-up

Teleport Platinum

GLOBAL VILLAGE COMMUNICATION

28.8K bps V.34 faxmodem

Loaded with features and backed up by a 5-year warranty, Global Village's Teleport Platinum is the premier choice for Internet and business connectivity.

◆ Data: V.34 (28.8K bps send and receive ◆ Fax: 14.4K bps ◆ Features Flash ROM for easy feature upgrades! ◆ Included software: Power Macintosh native GlobalFax™ V2.5, GlobalFax OCR, ZTerm and America Online

CDW 52875 **$194.73**

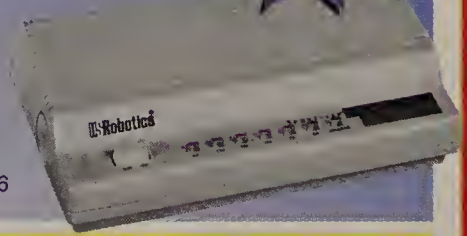
Sportster 28.8 Faxmodem

U.S. Robotics

Sportster reliability and economy, now with V.34 performance!

FREE! Internet Valet Kit CD!

Easy, reliable fax and data communications made Sportster the world's best-selling brand of modems. Special Mac cabling and software written specifically for the Macintosh make this Sportster the smart choice for everything you do online.



$197.89 CDW 61506

SupraExpress™ 288

Supra Corporation

The SupraExpress™ 288 offers fast, dependable 28,8000 bps data, 115,200 throughput, and 14,400 bps fax– all for a terrific low price! Complete Macintosh solution includes everything you need for high-speed communications: FAXcilitate™ fax software, Microphone™ data software, and CompuServe Information Manager software and user manuals.

$154.74 CDW 56815

Global Village PowerPort PC Cards

GLOBAL VILLAGE COMMUNICATION

Gold 14.4K bps data/fax
$174.87 CDW 60090

Platinum 28.8K bps data/ 14.4K bps fax
$334.82 CDW 60095

Platinum Pro 10BT Ethernet 28.8K bps data/14.4K bps fax
$497.63 CDW 60010

Why pay retail? CDW® sells for less!

(800)509-4CDW(4239)

MW1608

©1996 CDW® Computer Centers, Inc.

Most orders ship the same day!

Circle 2 on reader service card

CREATIVE COMPUTERS

MacMall™

YOUR MAC SUPERSOURCE!™

"The Only Catalog Every Mac™ Owner Should Have

The Catalog (s) wit

See our full line catalog for the PCI PowerWave

PowerComputing

POWER 120 8MB

- $900 worth of FREE Software
- 100% guaranteed Mac™ compatibility and lifetime toll-free technical support

Power 120 8MB (no hard-drive)-desktop unit ..... $1399 #77656
Power 120 8MB (no hard-drive)-tower unit ..... $1399 #77657
Power 120 8MB/365MB -desktop unit ... $1699 #77660
Power 120 8MB/365MB -tower unit ..... $1699 #77661

MW ★★★★ MacUser ZD LABS

PowerCURVE™

- 120MHz PowerPC™ 601 processor
- Includes Macintosh system 7.5.2 and a 100% guarantee of Mac OS compatibility
- Bundled software package including SoftWindows (trial version); Quicken; Now Up-To-Date and much more

PowerCurve™ 8/850/4xCD-low profile ..... $2149 #78553
PowerCurve™ 8/850/4xCD-desktop unit ..... $2149 #78554
PowerCurve™ 16/1 GB/4xCD-low profile ..... $2499 #78555
PowerCurve™ 16/1 GB/4xCD-desktop unit ... $2499 #78556

NEWER

Add the Blazing Performance of a PowerPC™ Processor to Your PowerBook® 500!

$80 Factory-Direct Trade-In Rebate on your old 040 processor until 6/30/96

NUpowr 117Mhz-4MB PowerPC 603e upgrade card for PowerBook 500 series $849.99 #78524
NUpowr 117Mhz-0MB PowerPC 603e upgrade card for PowerBook 500 series $629.99 #78523
NUpowr 117Mhz-8MB PowerPC 603e upgrade card for PowerBook 500 series $1024.99 #78525

Portrait Display Labs — The Pivot 1700™

Portrait — Pivot without closing applications — Landscape

The Most Versatile Pivoting Color Display In The World!

Pivot 1700 Display for Windows & Macintosh

- Up to 16 million colors, maximum 1280 x 1024 resolution at 76 Hz
- Flat square CRT design with built-in anti-glare screen and tilt and swivel base
- Includes MacPortrait™ & WinPortrait™ video driver software and necessary cables
- Three Year Factory Warronty

Windows™ and Apple® Power Macintosh® compatible!

Pivot 1700™ .26dp $1049.99 #72477
Pivot 1700™ .28dp $999.99 #75000

275 MHz OF POWER!

AFTERBURNER MVP

The first Parallel Processor card to break the 100MHz barrier for *all* 60MHz, 66MHz & 80MHz Power Mac™!

- High-Performance PowerPC™ 601plus™ processor
- 120MHz standard speed, 140MHz Pro version available
- Out performs the Power Macintosh® 9500
- Allows Parallel processing for up to 275MHz of power!
- 100% compatibility with 6100, 7100 & 8100 PPC

AfterBurner MVP ..... $1,299.99 #78002
Pro ..... $1,379.99 #78003

WARP FACTOR 175

175MHz accelerator for 8500 & 9500 Fastest Available!

NEW LOW PRICE!

$199.99 #78001

6100..... to 90MHz • 7100..... to 90MHz
8100/80.. to 90MHz • 8100/100.. to 128MHz
8100/110..up to 135MHz

NEW LOW PRICE!

WARP FACTOR 135 $79.99 #78089

Arctic $79.99 #78005
Active Cooling System (-70) degree F.

HYPERSPEED $179.99 #78004
7200 & 7500-128MHz

XLR8 INCORPORATED

UMAX *The Magic of Color™*

36-Bit PowerLook II Pro

w/Transparency Adapter, Adobe™ Photoshop™ 3.0, KPT SE, KPT Power Photo CD, Pixar 128 CD

$3395.99 #78154

TENON

Power Mach ten

The Native and Fully-Integrated UNIX Software!

$579.99 #75953

SONNET — Best Buys To Run Your Mac™ Faster

25 MHz Math co-processor for Q605, C650, C/Q 610, LC475, P47x

$159.99 #64003

256 Cache SIMM for Power Mac™ 7200, 7500, 8500 Plugs into dedicated slot

$239.99 #75702

IOMEGA®

Zip™ Drive

Stores 100MB on one 3.5" cartridge

Includes one Cartridge!

$199.99 #69404

Zip Cartridge-single $19.99 #69405

Syquest® EZ-135

EZ Drive EXTERNAL

SyQuest

135MB Removable Drive

- 135MB capacity • SCSI Interfaces
- Avg. Seek Time: 13.5/ms
- Cartridge Included

$239.99 #73549

SyQuest® EZ-135 Cartridge $19.99 #73626

he Great Deals

Authorized Catalog Reseller

The New 3.5" MCD 540 MB Diskette

Interface	SCSI2
Seek Time	
Track to Track	2 msec
Average	10 msec
Cache size	512k bytes
Interface Transfer Rate	
Burst	10 MB/sec
Sustained	
Maximum	5.3 MB/sec
Minimum	2.5 MB/sec
Disk Data Transfer Rate	
Maximum	8.8 MB/sec
Minimum	4.1 MB/sec

Fixed Disk Performance with All the Removability Advantages

The 540 MB MCD Diskettes have been conceived in order to respond to all your storage requirements:
Back-up your hard drive • Mail, move, transfer and share large files • Exchange files with other users • Use one diskette per project, account or client • Travel easily with all your data • Free up space on your hard disk • Store and run all your applications and entire multimedia presentations • Save large scanned or downloaded graphics, sound and video files from networks • Store on one MCD Diskette endless floppy libraries • Transfer everyday files from slower devices • Space and security copies for your kids' games and personal files • CD mastering • Read CD files at lightning speed
MCD: the most reliable, the most practical, the fastest and the most economical storage solution.

540MCD External Sub System
Includes: Power cable, SCSI cable and Utility Software $579.99 #77062

540MB Diskettes - 2 pack $119.99 #77290

540MB Diskettes - 5 pack $249.99 #77291

THE MEMORY OF THE FUTURE

We're open to take your order anytime, 24 hours a day, seven days a week.

24 HRS A DAY 7 DAYS A WEEK

Order toll free: 1·800·222·2808

Circle 131 on reader service card

Enter the Dream Machine Sweepstakes

You could win this Porsche Boxster

Call 1·800·222·2800
For Our Full Line Catalog & Get All The Details

No purchase necessary. For complete details including official rules see the MacMall catalog 57 or higher. Sweepstakes open to US residents 21 years of age or older. Void where prohibited. Car depicted is a prototype. Actual car to be awarded may vary.

Get your FREE catalog(s) today!

Please Check catalog(s) you wish to receive.

- ❑ MacMall
- ❑ PC Mall
- ❑ DC Mall

Name _____

_____

Address _____

_____

City _____

State _____

Zip _____

OFFER CODE
MacWorld
MWO631

Mail to:
MacMall, Dept. ADV.,
2645 Maricopa St.,
Torrance, CA 90503

Mac Systems & Peripherals

Sales and Leasing

DigiCore, #1 Independent Mac Reseller

Unsurpassed Savings and Availability

ABOVE 5% COST

Over 26000 Products Available - If We don't have it, Chances are Noboby Does!

Business Leasing

For Established Businesses Only

Same Day Approvals

Lease $99 per mo

7500 Work Station

PowerMac 7500/100, 16-1000 CD
15" Display w/Speakers
Apple Extended Keyboard
Sale Price.....$2985

Lease $135 per mo

8500 Design Station

PowerMac 8500/120, 16-1000 CD
17" Display w/Speakers
Extended Keyboard
Sale Price.....$3995

Lease $106 per mo

7500 Complete System

PowerMac 7500/100 16-1000 CD
17" MultMedia Monitor
Star Color Printer
Extended Keyboard
Sale Price.....$3135

PowerMacs

We will Custom Configure any System to your Spec.'s

	Buy	Lease
7200/75, 8-500 CD	1299	44
7200/75, 16-1000 CD	1695	57
7200/90, 8-500 CD	1550	52
7200/90, 16-500 CD	1750	59
7500/100, 16-500 CD	2350	79
7500/100, 16-1GB CD	2575	87
8500/120, 16-1GB CD	3550	120
8500/120, 32-1GB CD	3995	135
8500/120, 16-2GB CD	3999	135
9500/120, 16-1GB CD	3350	113
9500/132, 16-1GB CD	3799	128
9500/132, 16-2GB CD	4099	138

WorkGroup Servers

WGS 6150, 16-700 CD	1985	67
WGS 8150, 16-1G CD*	3895	131
WGS 9150/16-2000 CD	5369	181

Performa

	Buy	Lease
Performa 5215 CD	1695	57
Performa 6200 CD	1699	57
Performa 6205 CD	1799	61
Performa 6220CD/VI/TV	1750	59
Performa 6300 CD	2399	81

Call for UnListed Models

Radius • SuperMac
Sony • NEC • Apple
Phillips • Viewsonic
Nokia • CTX • Sanyo
Nanao • Hitachi...

Monitors

	Buy	Lease
Apple 14" Multiple Scan	329	11
Apple 15" Multiple Scan	379	13
Apple MultiScan 17" 1705	699	23
Mag 17" Trinitron	785	27
AppleVision 1710AV	999	34
Apple 20" Multiple Scan	1825	62
Philips 17B	755	25
Sony 17 SF2 MultiScan	899	30
Radius PrecisionColor 17	915	31
Radius IntelliColor/20e	1925	65
Supermac Pressview 17SR	1899	64
Supermac Pressview 21SR	2895	98
ViewSonic 17GS	765	26
ViewSonic 20G	1449	49

Powerbooks

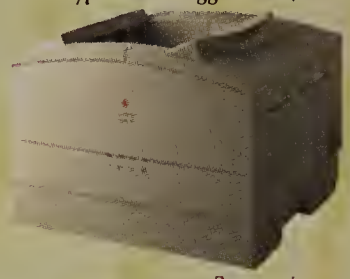
Targus Carry CASE only $39 w/PB Purchase

	Buy	Lease
190/66 8-500	1395	47
190cs/66 8-500	1775	60
520C 4-240	1399	47
5300/100 8-500	1499	51
5300/100 16-500	1725	58
5300cs/100 8-500	2199	74
5300cs/100 16-750	2675	90
5300c/100 8-500	2992	101
5300c/100 16-750	3550	120
5300ce/117 32-1.1 GB	5299	179

Printers

STAR Color Printer $129

360 DPI - True Type Fonts- Sugg. Retail $499



	Buy	Lease
StyleWriter 1200	249	8
Color StyleWriter 2200	349	12
Personal LaserWriter 320	745	25
LaserWriter 4/600 PS	815	27
LaserWriter Select 360	1225	41
LaserWriter 16/600	1899	64
Apple LW 12/600 PS w/Kit	6299	212
GCC Elite XL1208	3699	122
GCC Elite XL616	2599	88
HP 850c	535	18
HP 5MP	995	34
HP 4MV	2725	92

Video Boards

IMS Twin TURBO 128M	550	19
Apple 4 Meg. Nu-Bus	525	18
Thunder 30/1600	1189	40
Thunder 30/1152	789	27
Thunder Color 30/1600	1925	65
Thunder IV/GX1360	2125	72
Thunder IV/GX1600	2025	68
Radius VIDEO VISION v2	2999	101

EA Research *(Endorsed by Apple)*

EasyColor 24/1600	1699	56
EasyColor 24/1360	1299	43
EasyColor 24/1152	995	33
EasyColor 16/1600 PCI	599	20

Scanners

	Buy	Lease
Apple Color One w/Kit	575	18
Microtek IIHR	550	19
UMAX Vista S6	599	20
UMAX Vista S8	699	24
Epson ES 1200C	998	33
Agfa StudioScan IICI	865	29
HP ScanJet 4C	899	30
Agfa Arcus II w/transp.	1850	62
UMAX PWRLook w/Trans.	1850	62

Hard Drives

	Buy	Lease
SyQuest 200 w/cart	525	17
SyQuest 270 w/cart	520	16
Apple 160 (for Powerbook)	115	4
700 Meg Apple	195	7
1 GB Conner1080	325	11
1 GB Apple	345	12
2.1 GB Quantum Empire	650	22
2.4 GB Seagate Barracuda	875	29
4.3 GB Micropolis (7200)	1425	48
4.3 GB Seagate Barracuda	1495	50
9 GB Seagate Fast SCSI-2	2699	97
9 GB Micropolis	2599	88
External Hard Drive (w/SCSI Cable)	79	

Arrays from FWB

(PCI or NuBus)

	Buy	Lease
SledgeHammer 2000	1549	52
SledgeHammer 4100	2675	90
SledgeHammer 8200	3520	119
SledgeHammer 17400	5625	190

DAT from FWB

(Bundled with Retrospect)

HammerDLT Blank Tape	75	
HammerDAT4000	1189	40
HammerDAT8000	1345	45
HammerDAT48G*	3199	108
HammerDLT15G	4175	141
HammerDLT20G	5515	186
HammerDLT100G*	8750	295

**Autoloader*

CD Recordable & MO

Pinnacle Travel-Pak	119	5
Pinnacle Tahoe 230	725	25
FWB HammerCD w/Toast	1350	46
Pinnacle RCD 1000	1525	51
Pinnacle 1.3 GB Sierra	2175	73
Yamaha CDE 100 w/Toast	2399	88
Pinnacle 2.6 GB Sierra	4275	144

FREE *14 CD Bundle* w/system purchase

WWW address http://www.primenet.com/~digicore/

DiGiCORE

All Major Credit Cards • CODs
Wire Transfers • Corporate POs

Due to publication time constraints prices may vary •
Please Call for Current Pricing • No Sales Tax EXCEPT in CA •
All Prices Reflect CASH (COD) DISCOUNT•
All products Listed are New & Carry full MFR. Warranty •
Possible Restocking Fee on Non-Defective Returns •
All Returns/Repairs require an RMA Number •
**Lease Programs Vary — Details are available via Fax or Phone •*

DigiCore Inc. 15500 Erwin St • Van Nuys CA 91411

Order Toll-Free
800-858-4622

International & Dealers **818-785-2800**
24 hr FaxLine **818-785-3100**
In California **800-858-0311**
E-Mail **digicore@primenet.com**

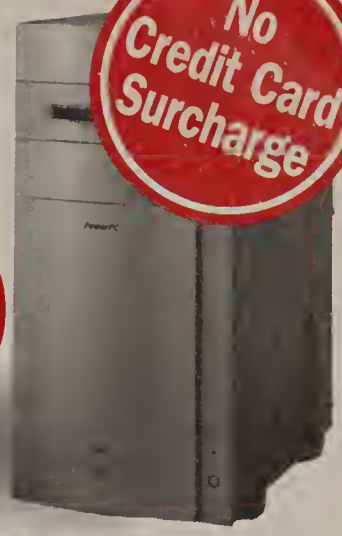
Circle 269 on reader service card

Since 1985

IMS Twin Turbo 4MB Video Upgrade
$369

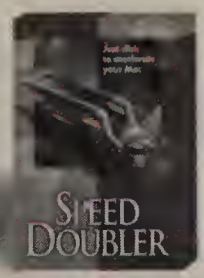
Power Mac 8500 16/1GB/CD
$3799

No Credit Card Surcharge



TelePort Platinum
$192

Speed Doubler
$48



16 MB Memory
$439

Global Village

GLOBAL VILLAGE COMMUNICATION

Teleport Platinum 192
Teleport Gold II.....119
Powerport Gold PC 182
Powerport Mercury PB500 329
Powerport Platinum PC ...335
Powerport Platinum Pro ..489

UMAX

UMAX "The Magic of Color"

Vista S6.....519
Vista S8.....629
Vista S12 full Photoshop 869
PowerLook II 2750
Business Card Reader....219
PageOffice 299

PowerClock

Accelerate your Power Mac. Toll-free tech support. 30 day mbg. Snap-on installation. No motherboard changes. Fan.
PowerMac 6100/84MHz...59
PowerMac 7100/84MHz...69
PowerMac 8100/133MHz 79
72/75/8500 .....call

POWER CLOCK PowerMac ACCELERATOR

Apple Systems

7200.....from 1498
7500 /1GB 2799
8100/100 8/700.....2188
8500 /1GB .....from 3799
9500/132 16/1GB/CD.4408
9500/132 16/2GB/CD 4409

Ordering

BOTTOM LINE ON-LINE
Prices ■ Sales

See our extensive Web catalog at:
http://www.blol.com/bld/
Toll Free ■ Fax
International ■ Email
Secured Web Ordering

Video

DISPLAYS

Apple 1705.....739
Apple 1710.....call
ArtMedia 17" Sony.....936
DiamondPro 21TX.....2115
DiamondScan 20.....1741
NEC 17" 795
Philips Monitors .....call
Radius Pivot 1700.....969
Radius PrecisionView 17" 875
Radius Intellicolor 20e...1949
Radius PressView 21SR 3199

DIGITAL VIDEO

Spigot II Tape 549
Targa 2000.....2715
VideoVision .....call

DISPLAY CARDS

Number Nine.....call
IMS 2MB Card.....369
IMS 4MB Card.....569
Radius PCI .....call
ATI Xclaim 369
Focus 16bit w/ethernet..386

Input/Output

MODEMS

Supra Express 288 159
Supra v.34 28.8.....211
U.S. Robotics 215
Prometheus Cyberphone.165
Supra 28.8 PowerBook...239
Supra 14.4 PowerBook...161
Cruise Card 28.8 297
Netlink PC Cellular.....269

DRIVES

All Seagate AV Drives.....call
Conner 1GB Wide...269/369
Conner 1GB 10ms .249/349
DeskStar 1GB 299/399
Quantum 1GB 269/369
Quantum 730MB....199/299
Magic Syquest.....399
SyQuest EZ135.....225
ZIP 100MB.....199
JAZ IGB 569

MEDIA

230 Optical 25
128 Optical 14
Syquest 200/270 .....75/57

Input/Output

Syquest 88/44.....47/42
Nomai 88/44.....39/34
EZ135 Media 19
ZIP Media..... 15
CD-Recordable.....8

SCANNERS

Agfa Arcus II.....1925
Agfa StudioScan IIsi 909
Epson 1200c .....from 999
HP 4C 999
Kodak DC40 Camera.....699
Microtek.....call
Nikon SuperCoolScan ...1999
Visioneer PaperPort.....269

PRINTERS

Apple 360 769
Apple 4/600.....869
Apple 16/600.....2199
Epson 11x17 1799
Epson II 499
Fargo Dye Sub.....1399
Gcc Elite from 2349
Hewlett Packard .....call
Kodak DC40.....call

Systems

SYSTEMS

We custom configure. Call for latest prices!
6100/66 8/500/CD.....1329
7100/80 8/700 1399
8100/110 8/700 2188
PB 5300.....1799
PB 5300CS from 2349
PB 5300C from 3299
Powerbook 190 8/500 .1870
Powerbook 190cs .....

RAID COMPONENTS

Atto PCI SCSI 329
FWB Raid Software 299
FWB Jackhammer PCI.....359

CD

2x CDR.....999
Magic 6X 3701 CD.....439
NEC 6XE CD 579
FWB CDR.....1468
Pinnacle CDR.....1325

Memory

Call for current pricing.

DIMMs
8/16MB DIMM.....229/459
32/64MB DIMM ..899/1899

30 PIN SIMMS
1/2MB SIMM.....25/75
4/16MB SIMM.....129/479

72 PIN SIMMS
4/8MB SIMM.....117/236
16/32MB SIMM.....439/939

POWERBOOK
All models .....call

VRAM
256K/512K.....19/39
PCI VRAM 1MB.....79
PCI Cache 256.....199
256K/512K Cache.129/299

POWERBOOK 190/5300
8/16/32.....349/649/1199

POWERBOOK 160/165C/180/180C
6/8/10.....225/299/399

POWERBOOK DUO.....call

All memory backed by a lifetime warranty.

Shipping: **$5, 5 lbs., 2 Days** Payment: No surcharge on credit cards. Corporate POs welcome. Tax: Texas residents add 8.25% sales tax. Prices: Items, prices and availability subject to change. Returns: Call for RMA number. Must be in original condition, opened software is non-refundable. Subject to a restocking fee. Original shipping is non-refundable. Apple brand products are not returnable for refund. Bottom Line Distribution cannot be responsible for errors in typography or photography. Customer Service:512-892-4090. International Sales: Bottom Line Distribution is committed to the needs of the international Macintosh user. We offer discounted rates with DHL. Delivery to most countries is 2 to 3 days. Dealer inquiries are welcome. Language interpreters available. Address: 4544 S. Lamar Blvd., #100, Austin, TX 78745

BOTTOM LINE ON-LINE
Prices ■ Inventory ■ Sales
email: sales@blol.com
See our catalog at:
http://www.blol.com/bld/

4/96 MW

512-892-4070 ■ Fax: 512-892-4455
Hours: M-F 9-9 | Sat 9-4

VISA DISCOVER

BOTTOM LINE DISTRIBUTION

1-800-990-5794 US & Canada

Get Free Shipping When You Order On-Line. Surf to: http://www.blol.com/bld/

Circle 63 on reader service card

MacWA

Authorized Catalog Reseller

We carry over 6,000 products for your Mac!

NEC MONITORS as low as $499!

NEC XV15 15" Monitor... MON 0102 .... $499
NEC XV17 17" Monitor... MON 0104 .... $829
NEC XE21 21" Monitor... MON 0106 ... $2099

POWER MAC DIMMs AS LOW AS $389 EACH

Speed Doubler, RAM Doubler & Conflict Catcher
all 3 only $99.95

MSB 0044

Shipped in promotional packaging.

Supra FAXModem 288 V.34 only $229.95

A great time and money saving solution for all your data and fax communications!

DMD 1377

Power User 200MB Removable Drive

- Reads & writes 44MB, 88MB, & 200MB cartridges!
- Ideal for archiving & transporting!
- Removable for unlimited storage!

drive only $399

Ask for item# DRI 0940

*Drive only

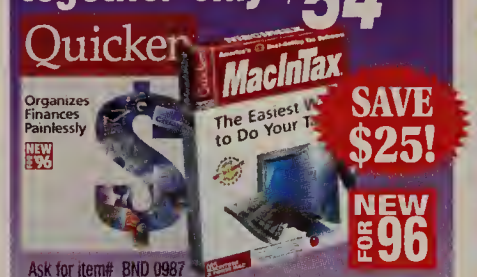
5.25" SyQuest Removable Cartridges

Item #	Size	Qty. 1-4	Qty. 5-9	Qty. 10+
MED 0035	44MB	$59.95	$54.95	$49.95
MED 0071	88MB	$64.95	$59.95	$54.95
MED 0146	200MB	$89.95	$84.95	$79.95

4 Ways to Order:

1. Call 1-800-255-6227
2. FAX: 1-908-905-9279
3. CompuServe: GO MW

MacInTax and Quicken together only $54.90*



SAVE $25!

NEW FOR 96

Ask for item# BND 0987

*Price reflects $5 manufacturers mail-in-rebate for MacInTax. Price before rebate is $59.90. $25 savings based on MacInTax & Quicken prices as of this printing.

QuarkXPress 3.32

only $659.95

PLUS 2 FREE BONUSES!

QuarkXPress 3.32 for Mac/Power Mac DTP 0164 (CD-ROM). Includes QX-Tools & PhotoDisc Sampler (shipped in promotional packaging).

NEW! MacWAREHOUSE is now on the Internet

Now you can order your favorite Macintosh products on the net!

✓Hundreds of shareware and demo titles for you to download!
✓Latest Information on the newest products!

http://www.warehouse.com

1. Our customer service staff is ready to take your order 24 hours a day, 7 days a week.
2. We accept the following major credit cards: Visa, MasterCard, Discover, AmEx. Your credit card will not be charged until each item is shipped (no surcharge).
3. CT, NJ, and OH residents add applicable sales tax.
4. Shipping charge for orders under 10 lbs. is $3.00. Orders over 10 lbs. are $1.00 per pound or fraction thereof.
5. Place your order for "in-stock" items up to 12:00 midnight(E) (weekdays), and we will ship same day for overnight delivery (barring system failure, etc.).
6. We use Airborne Express, unless UPS Ground offers overnight delivery to your area. (Some areas of the U.S. require more than one day delivery.)

30 GUARANTEE DAY

7. Many of our products come with a 30-Day Money Back Guarantee. If, for any reason, you are not completely satisfied with your purchase of any of these items, call our Customer Service Department at 1-800-925-6227 for a Return Authorization Number and a full refund of the original purchase price of the item, excluding shipping and handling charges. Ask our operator at the time of ordering if the product is covered by the Money Back Guarantee You must return the undamaged product at your expense, including all its packaging and documentation and the blank warranty card if applicable. All items we sell come with the MacWAREHOUSE 30-Day Guarantee Against Defects. If your product is defective in any way, all you have to do is call our Customer Service Department for a Return Authorization Number. Defective software will be replaced upon receipt of the defective product. Defective hardware will be replaced or repaired at our discretion.

30-DAY Guarantee Against Defects

© Copyright 1996 Micro Warehouse, Inc. MacWAREHOUSE® is a division of Micro Warehouse, Inc. MacWAREHOUSE® and MicroWAREHOUSE® are registered trademarks and Data Comm WAREHOUSE and MacSystems WAREHOUSE are trademarks of Micro Warehouse, Inc. Apple, the Apple logo, Mac and Macintosh are registered trademarks of Apple Computer, Inc.

Item availability and price subject to change without notice. We regret that we cannot be responsible for typographical errors.

4x CD-ROM Drive as low as $199.95*

Ask for item# BND 0850

*WITH THE PUCHASE OF ANY OF THE FOLLOWING CD TITLES BELOW

Grolier 1996 Multimedia Encyclopedia
BBD 0225 ..... $29.95†
F/A-18 Hornet & Korean Crisis on CD
BBD 0222 ..... $49.95†
Art Explosion, 40,000 Images on CD
BBD 0223 ..... $49.95†

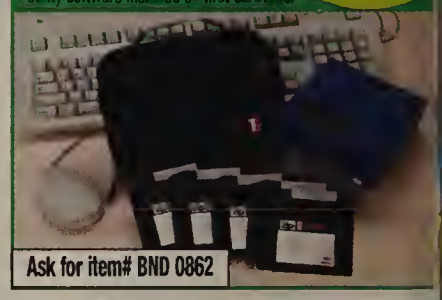
†Products shipped in promotional packaging. *CD-ROM Drive price without software purchase $219.95 BND 0678.

NEW! Zip Drive Deluxe Kit

Iomega Zip Drive Starter Kit includes:
- Iomega 100MB Removable Zip Drive
- Five 100MB cartridges
- Driver software
- Zip Drive carrying case

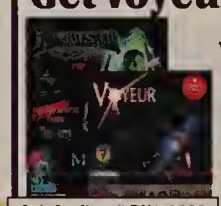
only $299

*Utility software included on first cartridge.



Ask for item# BND 0862

Get Voyeur FREE! when you buy Frankenstein



ONLY $49.95

The classic tale of Frankenstein takes on new meaning when YOU are the monster!

Ask for item# BND 0982

While supplies last.

NEW! FileMaker Pro 3.0

Upgrade for only $99.95

Now relational!

Ask for item# UPG 0231

NEW! Turbo Mouse 5.0

New 4-button design saves time and effort!

$109.95

Ask for item# INP 0626

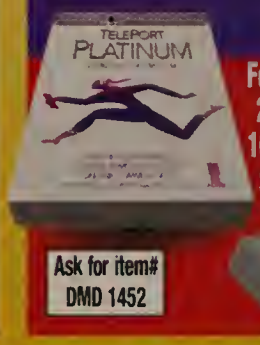
PowerBook MEMORY AS LOW AS $199.95 EACH

PowerPort Platinum Pro PC Card 288 Modem only $509.95!

Ask for item# DMD 1594

TelePort Platinum Modem

Features simultaneous 28.8 fax/modem and 10BaseT Ethernet only $209.95



Ask for item# DMD 1452

REHOUSE®

Plus a full line of Macintosh™ computers!

Z 135MB SyQuest Drive

drive only $229.95

Ask for item# DRI 1129

5MB 3.5" removable cartridges

as low as $24.95*

*With quantity discounts

#	Qty. 1-4	Qty. 5-9	Qty. 10+
0166	$29.95	$27.95	$24.95*

HP DeskJet 855c

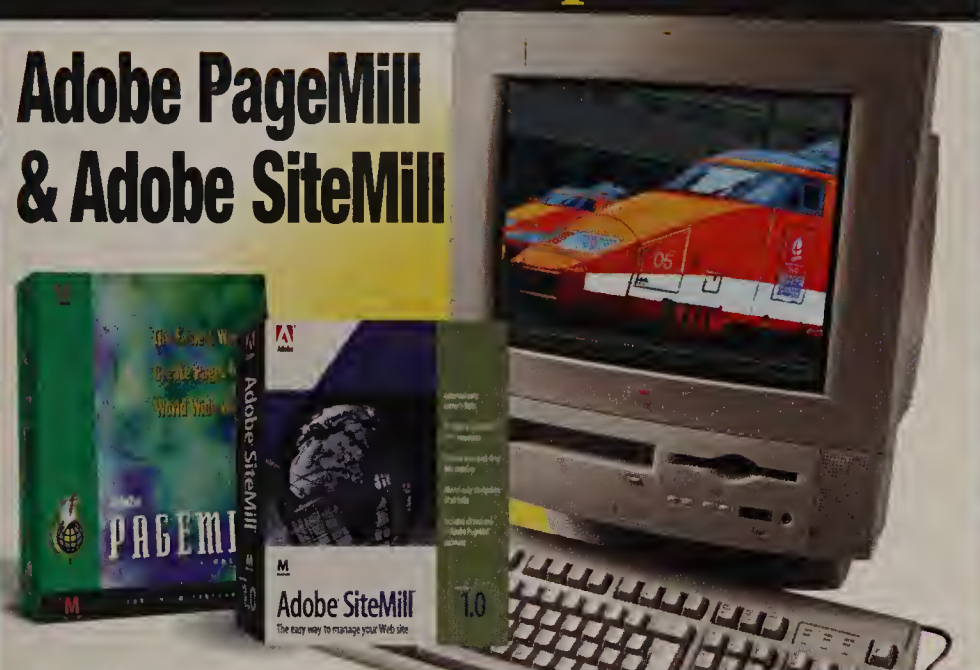
COLOR!

Ask for item# INP 0543

0dpi color printing
dpi B&W printing
nts 7 B&W pages/min.
nts 3 color pages /min.
c & IBM compatible

$549

Adobe PageMill & Adobe SiteMill



Adobe PageMill lets you create and maintain great-looking pages on the World Wide Web.
COM 0325 ..... $99.95

Adobe SiteMill Upgrade from PageMill
UPG 0234 ..... $299.95

Adobe SiteMill is the MOST comprehensive way to manage your Web site!
COM 0343 ..... $399.95

Requires: 3MB hard disk space; System 7.0 or later; color monitor.

Upgrade to Adobe Illustrator 6.0

Be more creative with this exciting new version!

6.0 Upgrade from version 5.0 or later
UPG 0222 *CD-ROM only* $99.95
6.0 Upgrade from version 5.0 or later
UPG 0223 *CD-ROM/Disk* $129.95
6.0 Upgrade from 3.2 or earlier
UPG 0220 *CD-ROM* $99.95
UPG 0221 *CD-ROM/Disk* $129.95

MacWAREHOUSE BEST SELLERS

Product & Item#	Price
SoftWindows 2.0 for PowerMac	
Ask for Item# COM 0290 (CD-ROM)	$299.95
RAM Doubler & Norton Utilities with FREE Marathon!	
Ask for Item# MSB 0045	$99.95
Adobe Illustrator 6.0	
Ask for Item# GRA 1254	$389.00
Microsoft Office 4.2.1	
Ask for Item# BND 0779	$279.00
RayDream Designer 4.0	
Ask for Item# GRA 1203	$99.95
Stuffit & Conflict Catcher	
Ask for Item# MSB 0040	$69.95
Hayes Accura 288 V.34	
Ask for Item# DMD 1491	$215.95
Macromedia Director 4.0	
Ask for Item# GRA 1259	$819.00
FileMaker Pro 3.0	
Ask for Item# DAT 0164	$199.95
HP LaserJet 5MP	
Ask for Item# INP 0481	$1099.00

Get a Power User's Tool Kit® FREE!

The Power User's Tool Kit is packed with powerful programs compiled exclusively for MacWAREHOUSE customers. Some of the programs are shareware, so you can try them free of charge—some authors ask that you pay a small fee ($8-$25). The Power User's Tool Kit is FREE when you order from MacWAREHOUSE. You pay only $2.00 shipping and handling. If you would like the disk, please ask for Item # AAA 0161. All programs work with System 7.

POWER USER GB HARD DRIVE

only $399

Ask for item# BND 0935

POWER USER SyQuest Compatible Cartridges

as low as $39.95*

Comes with a 5 year warranty

*With quantity discounts

Size	Item #	Qty. 1-4	Qty. 5-9	Qty. 10+
44MB	MED 0174	$49.95	$44.95	$39.95*
88MB	MEO 0175	$54.95	$49.95	$44.95

Memory Upgrades

as low as $49.95 EACH

1MB, 30 pin, 80ns

We'll install your SIMMs for only $29.95 extra when you purchase your CPU and SIMMs at the same time. Orders must be placed by 8pm (EST) for overnight delivery. Ask for item # INSTL01

Adobe PhotoDeluxe

NEW!

Easily modify and personalize your own photos!

$89.95

Ask for item# GRA 1258

Now Up-to-Date & Now Contact

Together for only $74.95*

Lowest price ever!

BND 0979

*Price reflects $25 manufacturer small-in rebate. Price before rebate is $99.95. Rebate offer expires 4/7/96. Shipped in promotional packaging.

FREE CATALOG!

To order call toll-free 24 hours a day, 7 days a week

1-800-255-6227

FREE CATALOG SUBSCRIPTION! Check the appropriate box(es) to receive your FREE 1-year catalog subscription(s) and mail this coupon to: 1720 Oak Street, P.O. Box 3031, Lakewood, NJ 08701

Name _____

Address _____ Apt. _____

City _____ State _____ Zip _____

(Expect to receive your first issue(s) within 4-6 weeks).

❑ *Yes, send me my FREE Power User's Tool Kit. Enclosed is my check for $2.00 to cover shipping & handling.*

MW0496

❑ MacWAREHOUSE ❑ MicroWAREHOUSE ❑ Data Comm WAREHOUSE ❑ MacSystems WAREHOUSE

Circle 150 on reader service card

MACWORLD April

CRA SYSTEMS, INC. 800/375-9000 radius Quantities are Limited!...

AWARD WINNING PRODUCTS

DISPLAYS

TWENTY ONE INCH DISPLAYS

21 Inch DiamondTron Monitor
from **$1999***
- Rated Superior to Trinitron
- Largest Aperture Grille monitor available
- Up to 1600x1200 on Macs and PCs
- Full Digital Control from Keyboard

Radius SuperMatch 21 TXL	from $1699*
Radius PrecisionView 21	$CALL
Radius PressView 21sr	from $2899*
SuperMac PressView 21 "Editors Choice"	$1999*

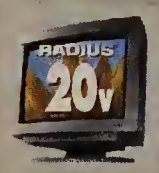
Radius PrecisionColor Display 21
$1499*
- 1600x1200 to 1024x768
- Razor sharp dot pitch
- Best for color accuracy
- Selectable color temperatures

Compare at $2399

RasterOps SuperScan MC 21	$CALL
Radius Multiview 21	$CALL
Radius 21 inch Grayscale Display	$799

*With qualifying videocard, accelerator, or computer purchase

TWENTY INCH DISPLAYS



TWO PAGES FOR THE COST OF ONE!
While Supplies Last!–Your Choice of...
Retail $1999 **SuperMac SuperMatch 20 PLUS**
$999*
- Up to 1152x870 resolution
- Advanced Digital Controls
- Non-glare, Dynamic-Focus CRT

Best Screen Uniformity!

Radius PrecisionColor 20v	$1099*
Digital 20 inch Display Up to 1280x1024	$1399
RasterOps 20 Multimode	$1299
Radius PrecisionColor 19	$899*

Radius IntelliColor Display 20
from **$1499*** Retail $2399
- MacUser, MacWorld, MacWeek Editor's Choice
- 1600x1200 to 640x400

Apple Multiple Scan 20 Display	$CALL
Ikegami 20 inch Grayscale Display	$699
Radius 20 inch Grayscale Display	$699

*With qualifying videocard, accelerator, or computer purchase

SEVENTEEN INCH DISPLAYS

SuperMac/E-Machines T16IIMR
Compare at $1299
$599*
- High Grade Studio Trinitron Series
- .25mm multi-resolution
- Editors Choice
- 1024x768 to 640x480 resolutions

SuperMatch 17T	$799*
PrecisionColor Display 17	from $899
PrecisionView 17	$CALL
Radius PressView 17sr MW ★★★★★	$CALL
SuperMac SuperMatch 17	from $499*

*With qualifying videocard, accelerator, or computer purchase

PORTRAIT DISPLAYS

Radius Color Pivot LE
$399*
We have cards for SE/30, LC, IIsi, Nubus, and Quadras

* With purchase of video card.

PrecisionColor Pivot	$599
Grayscale Pivot	$399
Radius Full Page Display	$CALL
Apple Portrait Display	$399
Portrait Display Labs 1700	$CALL
E-machines ColorPage 15 with NUBUS card	$499

COLOR MANAGEMENT

SuperMac Display Calibrator	$299
SuperMac Display Calibrator PRO	$499
Radius Mac ProSense Calibrator	$799

VIDEO CARDS

1600x1200 PCI & NUBUS

Radius ThunderColor 30/1152 & 1600	$CALL
IMS Twin Turbo 128M (4MB with MPEG)	$599
Radius PrecisionColor 8/1600	$499
EAsycolor 1600/16	$CALL
Radius Thunder II GX 1360 & 1600	from $999
Radius Thunder IV GX 1360 & 1600	from $1599
Radius Thunder 24/GT (accepts PhotoEngine)	$CALL

21" RESOLUTIONS

Radius PrecisionColor Pro 24X	$699
Thunder 8 "Fastest 8 bit card ever"	$CALL
Thunder 24 (DSP available)	$CALL
Radius LeMans GT	$799
SuperMac Ultura LX*	from $899
RasterOps Horizon 24*	from $999
RasterOps 24XLTV	$1999
RasterOps Prism GT	$CALL
Radius PrecisionColor 8XJ	$499

*DSP Available

20/19" RESOLUTIONS

SuperMac Spectrum 24 Series V	$599
Radius PrecisionColor Pro 24XK	$CALL
SuperMac Futura MX	$499
RasterOps PaintBoard Lightning	$CALL
SuperMac Spectrum 8	$199
PowerView/SuperView for Powerbooks	$199/$299

17/16" RESOLUTIONS

Radius 24 bit video cards	from $199
Radius PrecisionColor Pro 24XP	$CALL
SuperMac Futura SX	$299
RasterOps 24 MX	$399

PHOTOSHOP ACCELERATION

"If you frequently need to retouch large image files in Adobe Photoshop using such filters as Gausian Blur, Shapen, and Emboss, then you need either to have the patience of Mother Teresa or a digital signal processor (DSP) board." –Macworld

Radius PhotoEngine from **$399**
- Four AT&T 3210 66MHz DSPs
- Accelerates Photoshop Filters
- Up to 15x acceleration on all Macs
- MacUser Editor's Choice
- Available in Daughtercard or NUBUS versions

Standard video cards do not provide acceleration for many critical Photoshop functions, because they do not have on-board Digital Signal Processors (DSPs). When installed in your system, DSPs are used by Photoshop to process time consuming commands more than 10-times faster than built-in video.

Greatest Improvement Areas:
- Filters such as those in the Sharpen and Blur submenus
- Mode conversions such as RGB to CMYK color separations
- Image transformations such as rotations, effects, and resizes.

Radius PhotoBooster (NUBUS or Rocket/PDS)	$199
SuperMac ThunderStorm DSP Boards	$299
Radius Color Engine for Thunder 30 Cards	$CALL
Radius PhotoEngine Nubus	$CALL
Adobe Photoshop 2.5 Deluxe CD Edition	$CALL
RasterOps Paintboard DSP Upgrades	$CALL
Radius GX (CMYK acceleration) Upgrades	from $349

Stop wasting valuable time: Imagine using filters that normally take twenty minutes to process finishing in only two to four minutes! How much additional time would you save in just one week? You can't afford to be without DSPs.

PRINTERS

We have purchased excess printer inventories DIRECT from the manufacturer, so you can save over 50-75% on most of our current printers. DO NOT WAIT, as quantities are extremely limited and supplies will NOT last!!

COLOR LASER PRINTERS

Color Laser Printers are the best choice for printing text, graphics and color. They use a similar printing process to monochrome printers and output on standard laser paper, which means your prints will not fade or crease. The cost to add color to your documents is now only a few cents more per page. For a LIMITED TIME ONLY, you can purchase a Color Laser Printer for under $2,000--call now to order!!

QMS Magicolor from **$2999**
- Internal SCSI drive
- Flexible 300 or 600 dpi
- Blazing 33 MHz RISC processor
- PostScript Level 1, 2 and HP/PCL-5
- Only Color Laser Choice for envelopes

QMS ColorScript 1000	$1999
Tektronix 540 Plus	$CALL
Apple Color Laserwriter 12/600PS	$6279
Xerox 4900 series Color Laser	from $5589

TWO PAGE COLOR PRINTERS

11x17 Tabloid Color Printers	from $2999
SuperMac Proof Positive dye sub	$SPECIAL
Fargo Pictura 310 Color Printer	$CALL

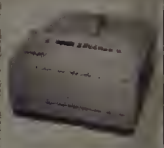
- Up to 12"x18" output
- Dual-function dye sub and wax thermal
- Editors Choice

QMS ColorScript 210/230	$CALL

- Up to 11x17" full-bleed output

TABLOID LASERS

QMS 860 Hammerhead 600-1200dpi
from **$1999**
- 11 x 17 full bleed
- PostScript Levels 1&2
- 8ppm heavy-duty Canon engine
- Powerful RISC processor

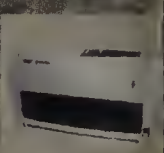


Hewlett-Packard 4mv	$CALL
GCC SelectPress 1200x1200dpi	$4999
22ppm QMS PS2210/2220	$1499/$1699

HOME/OFFICE

360 DPI Color Printer **$199**
Star SJ-144MC
- Full-Color output at crisp, laser-quality 360dpi Printer
- Heat Fusion process avoids ink-jet smear
- 2-year Manufacturer's Warranty
- ADD box of 3 Color Cartridges ($57 value) only $29

* With purchase of any other item in ad



Hewlett-Packard 5mp	$CALL
Apple Laserwriter Select 360	from $1199
QMS 815/815mr 8ppm, 600dpi	$699/$999
QMS PS 825/825mr 600dpi	$799/$1099
QMS 1060 10ppm, 600dpi	$CALL
QMS PS 1500 15ppm	$1299
QMS PS 1700 17ppm, duplex optional	$1999
Apple OEM Laserwriter 8ppm	$499
Seikosha SP-2400AP dot matrix	$179
Apple Imagewriter/Stylewriter	$CALL
GCC WriteMove/WriteMove II	$149/$249

New and Reconditioned Models of Most Items Available

CRA SYSTEMS **800/375-9000** CRA SYSTEMS

Supplies Won't Last... SUPERMAC CRA SYSTEMS, INC. 800/375-9000

AT OR BELOW DEALER COST!

CPU SPECIALS

POWER MACS

NUBUS POWER MAC SPECIALS*

owerMac 6100 8/350/CD	from $999
owerMac 7100 8/700/CD	from $1499
owerMac 8100 16/1GB/CD	from $2699
adius 81/110	$CALL

PCI POWER MACS ALL AVAILABLE

*With Qualifying Card And Monitor Purchase

All in stock $CALL for lowest prices

QUADRA BLOWOUT!

uadra/Centris 610 8/80/CD $699*
- Powerful '040 processor
- Multi-media ready with internal CD-ROM
- Built-in video supports up to 21" color monitors
- Software bundle with ClarisWorks, CD titles

dd 486DX/66MHz DOS Card only $399

acintosh Quadra 605/LC475 $599 CPU only
- NEW CPU, with 4MB RAM and 250MB HD
- Powerful '040 processor
- Radius Full Page Display
- Apple Design Keyboard
- ClarisWorks

$899 Complete

dd Radius Card for Display to TV only $99

uadra 950 8/500, NEW	$1399*
uadra 840AV 8/500/CD NEW BUILD	$1699*
uadra 650 4/250/CD	$CALL

*with purchase of any qualifying monitor or video card

MW ★★★★

MAC II SERIES SYSTEMS

ac IIsi Color Pivot System $299 CPU only
- Macintosh IIsi with 5MB RAM/80MB HD
- Radius Color Pivot Display
- Extended 105-key Keyboard
- FREE ClarisWorks!

$799 Complete

dd Radius Card for Display to TV only $99

ac IIcx 15" Color System $275 CPU only
- Macintosh IIcx with 4MB RAM/80MB HD
- E-machines ColorPage 15" Display
- NUBUS accelerated video
- Extended 105-key Keyboard
- FREE ClarisWorks!

$849 Complete

dd MacRecorder to Mac IIcx only $99

acintosh II 4/40	w/video card installed	$299*
acintosh IIci 4/80	w/cache card installed	$399*
acintosh IIfx 4/250	50MHz upgrade available	$499*
dd Apple Cache Card to Macintosh IIci		$39

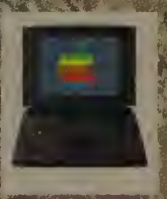
*with purchase of any qualifying monitor

ac Plus System w/Keyboard & Mouse	only $149
acintosh SE30	from $299
DD an External Modem to any CPU	$49

POWERBOOKS

owerBook 5300 series	$CALL
PC Upgraded Color PowerBooks	from $2299
owerBook 520c	from $1499
owerBook 190 series	$CALL
owerBook 160/180	from $999
owerBook Duo 210/230	from $699
owerBook Duo 270c/280c	$CALL
thernet Dock for Powerbook Duo's	$399*
pple Duo Docks	from $499*
dd GCC WriteMove II portable printer	$199*

*with purchase of a PowerBook



CPU UPGRADES

aystar PowerPC and 040 Accelerators	$CALL
adius Rockets 33MHz to 40MHz	from $399
tage Two Rocket 40MHz w/FPU	$699
ncludes SCSI II Booster and RocketShare	
ocketshare multiprocessing software	$299
peed upgrades for all 680X0 and PPCs	$CALL

DIGITAL VIDEO

Video Vision Studio 2.5.1 $1999*
- 24bit Full-Screen, Full-Motion Video
- Includes Adobe Premiere and VideoFusion
- Breakout bar supports dual input

*with purchase of Studio Array

Video Vision Studio Array $1999
- 4GB RAID Customized for Video Vision
- Includes FWB Jackhammer SCSI accelerator

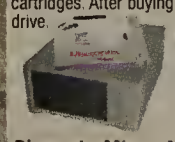
TRUEVISION Targa 2000 PCI/NUBUS	$CALL
RasterOps 24XLTV	$1999
RasterOps 24STV	$999
RasterOps 24MXTV	$CALL
RasterOps MoviePak II *JPEG Daughtercard Upgrade*	$CALL
Spigot II Tape *Now Bundled with Adobe Premiere*	$499
Apple PowerMac AV Card	$CALL
VideoSpigot Cards Nubus/LC/IIsi	from $99*
Radius Spigot Power AV	$799

*With purchase of Adobe Premiere

DRIVES

1.0GB OPTICAL FOR THE COST OF 230 MB!

Don't bother building a library of tiny 44, 200 or 230 MB optical and Syquest cartridges. After buying only 10 1.0GB cartridges your savings will pay for this drive.



MAXOPTIX 1.0GB MO from $599
- 1MB Cache, 9x more than 230 MB Optical Drive
- Maximum Reliability with 25 year operating life
- Reads 650MB and WORM cartridges

Pinnacle Micro APEX 4.6GB Optical Drive	$CALL
Pinnacle Micro CD-Recorders	from $799
NEC 4x External CD-ROM Multimedia Kit	$249
NEC 3x External CD-ROM Multimedia Kit	$199
Apple or NEC 2x External CD-ROM Multimedia Kit	$179
Fujitsu 1.2GB HD Wide (Ext) w/system	$349
Seagate 2.4GB HD fast & Wide Barracuda (Ext)	$899
Iomega ZIP, JAZ drives	from $199
Apple 250mb HD internal/external	$125/$200
Apple 350mb HD internal/external	$175/$250
Dayna 360K/1.2mb-740K/1.44mb	$499
Exabyte 8mm 5gb tape backup	$999
NEC CDR 72/73/74 CD drive	$99/$199/$299
Apple FDHD auto Insert floppy	$199
FWB Jackhammer SCSI accelerator PCI	$399
FWB Jackhammer SCSI accelerator NUBUS	$499
Daystar SCSI PowerCard accelerator NUBUS	$299

COOL STUFF

NETWORKING

WGS 6150 16/500CD/AppleShare	$2499
WGS 8150 16/1GB/CD/DAT/AppleShare	$3999
Apple Token Ring NUBUS cards	from $299
DCA Mac Irma 3270	$499
DCA Irma 3270 for Mac SE	$499
Shiva FastPath 4 Gateway	$999
EtherNet boards for SE, SE/30	$99
Asante & Daystar EtherNet boards for LC's	from $99
Daystar SCSI/Link External Ethernet Adapter	$299
E-machines Colorlink DC/T 8-bit graphics, 10BT ethernet	$199
E-machines Colorlink EX/T 24-bit to 640x480, 10BT ethernet	$299
E-machines Futura II SX/T 24-bit to 832x624, 10BT ethernet	$399
E-machines Colorlink SX/T 24-bit to 1024x768, 10BT ethernet	$499

CARDS & MONITORS

Apple 8•24 GC	$449
RasterOps 104 24bit card for Two Page Displays	$299
RasterOps 24XLi (3MB, expandable to 16MB)	$599
RasterOps 24L with 8D1	$699
RasterOps 708+ 8bit for 20" monitors	$299
Daystar NUBUS RAM Expansion Card	$199
E-machines T19 Card for SE30/IIsi	$299
E-machines ColorPage 15" monitor & video card	$499
E-machines Big Picture 17" gs monitor & card	$499

CRA Systems, Inc.
300 South 13th St., Waco, TX 76701
Monday thru Friday 9AM to 8PM CST Saturday 10AM-4PM *Sales Dept. Only*
Domestic Sales 800.375.9000 Fax 817.750.9050
Consultants/Dealers 817.754.2120 International Sales 817.754.2120

Prices reflect 2% cash discount. Prices subject to change. Not liable for typographical errors. All shipping charges for COD orders to be secured by credit card. Dealers and consultants call for quantity pricing. We ship anywhere.

Since 1986, CRA Systems has been offering a great selection of new and factory clearance technology products. Most of these items have been offered at or below dealer cost due to volume purchases direct from the manufacturers.

CRA SYSTEMS **800/375-9000** CRA SYSTEMS

Circle 20 on reader service card

MAC BARGAIN$™

DI$COUNT PRICE$ ON QUALITY HARDWARE, $OFTWARE & ACCE$$ORIE$

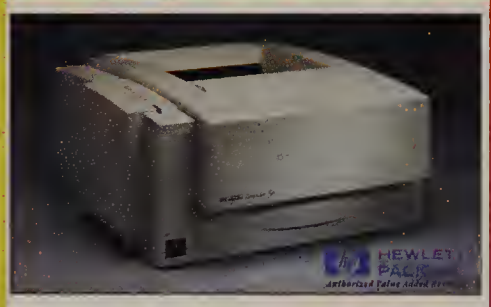
Buy with Confidence Online from MAC BARGAIN$.

- NEW! To place an order, e-mail to mac.bargains@mzi.com
- NEW! For detailed product information, e-mail to mac.bargains.info@mzi.com
- Over 2500 products in stock

Great Deals!

As Low As $2869

PowerComputing is here!
Mac-compatible, PowerPC™ performance for less!



HP LaserJet 5MP

Only $1049

- 600x600 dpi resolution
- Individual or shared use
- Flexible paper handling
- Prints up to 6 pages per minute
- Includes 35 Adobe Type I fonts, 75 TrueType fonts on disk
- 350 sheets input, 100 sheets output
- For more information, e-mail keyword HP5MP

Hewlett-Packard #23786

DayStar Power Cache 50MHZ W/FPU

Only $278

- Super performance for all software applications
- High-speed math performance
- Completely universal/transportable – it's %100 compatible with 20 different Mac platforms
- For more information, e-mail keyword POWERCACHE

DayStar #04322

ACI US

89421	4D Software Development Kit	$2,249.98
96355	4D First 1.2	$94.98
88885	4D Server 1.X to 1.5 Version Upgrade	$349.98
88882	4th Dimension 3.5	$679.98
88883	4th Dimension 3.x -3.5 Vers. Upgrade	$224.98

Adobe Systems

89675	Acrobat Exchange 2.1	$128.98
89677	Acrobat 2.1 for Workgroups	$999.98
06263	Dimensions V2.0	$121.98
95314	Fetch V1.2 Single-User	$93.98
06994	FrameMaker V5.0 Upgrade	$198.98
03582	FrameMaker V5.0	$552.98
92217	HomePublisher V2.0 Deluxe CD	$48.98
88205	Illustrator V5.0 to V6.0 Upgrade CD	$98.98
88206	Illustrator V6.0 CD & 3.5"	$364.00
91255	PageMaker 6.0 Upgrade	$139.98
91256	PageMaker V6.0 Mac/PowerMac	$545.00
88414	PageMill 1.0	$95.66
91618	Persuasion V3.0 Mac/PowerMac	$239.98
87623	PhotoDeluxe	$72.98
04042	Photoshop 3.0.5	$544.98
95341	Photoshop 3.0.5 Upgrade	$157.00
04670	Premiere V4.2	$484.98
91600	Print Central 4.0	$438.98
03971	Streamline 3.1	$122.98
03950	Type On Call 4.1	$42.98

Aladdin

98501	SitComm	$61.98
05827	StuffIt Deluxe 3.5	$69.98

Alsoft

00618	DiskExpress II 2.2	$42.98
04543	Master Juggler 1.9	$31.98

Avid Technology

98489	Elastic Reality for Power Mac	$228.98
93894	VideoShop 3.0	$239.98
03552	Avery MacLabel Pro	$45.30

Best!Ware

04712	MYOB Accounting V6.0	$78.98
99042	MYOB Accounting V6.0 w/Payroll	$132.98

Caere

05161	OmniPage Direct V2.0	$58.11
01005	OmniPage Pro V6.0	$448.98
91304	OmniPage Pro V6.0 Upgrade	$148.98

Casady & Greene

91300	Conflict Catcher 3	$59.00

Claris

18052	ClarisDraw	$184.98
93424	ClarisWorks V4.0	$117.98
92638	ClarisWorks V4.0 Ver/Comp Upgrade	$64.98
88830	FileMaker Pro V3.0	$188.98
88829	FileMaker Pro V3.0 (Ver/Comp Upgrade)	$94.98
06525	MacWrite Pro V1.5	$88.98

Connectix

05646	PowerBook Utilities	$53.98
96785	RAM Doubler v1.52	$53.98
90375	Speed Doubler	$53.00
90149	RAM/Speed Doubler Bndl	$75.00

Corel

95331	Corel GALLERY 1	$31.98
91628	Corel GALLERY 2	$63.98
92234	Corel Stock Photo Library 1	$899.98
91276	Corel Stock Photo Library 2	$899.98
00203	Cricket Graph III	$84.98

Dantz

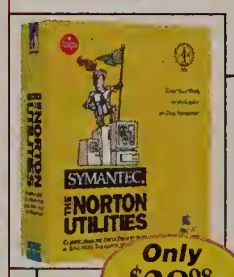
04722	Diskfit Pro V1.1	$68.98
02586	Retrospect V3.0	$134.94
04194	Retrospect w/ Remote 10-Pack	$259.98

Datawatch

02077	Virex V5.6	$59.45

Dataviz

96907	MacLink Plus/PC Connect 8.0	$113.98
96908	MacLink Plus/Translators Pro 8.0	$93.98



Norton Utilities V3.2 Upgrade

Only $38.98

#93976

DeltaPaint

04805	DeltaGraph Pro 3.5	$124.98

Entertainment

94569	11th Hour, The-Virgin	$54.98
99236	7th Guest, The-Virgin	$41.98
02785	After Dark v3.0-Berkeley Systems	$26.98
99575	BattleChess Enhanced-MacPlay	$44.98
93809	Carmen Sandiego/USA Otx CD-Broderbund	$45.98
97732	Carmen Sandiego/World Otx CD-Broderbund	$49.98
97122	Castles II: Siege & Conquest-MacPlay	$35.98
06848	Civilization-Microprose	$42.98
91005	Dark Forces-LucasArts	$49.98
92035	DDDM II-GT Interactive	$44.98
06394	Falcon MC-Spectrum Holobyte	$40.98
96284	Marathon-Bungie Software	$37.98
90082	Millie's Math House CD-Edmark	$39.98
05518	Music Time v2.0-Passport Designs	$94.98
97733	MYST-Broderbund	$49.98
93543	Night Trap-Acclaim	$47.98
97149	Peter Gabriel XPLORA 1-MacPlay	$44.98
00473	PGA Tour Golf II-Electronic Arts	$37.98
95423	Prince of Persia II-Broderbund	$34.98
05934	Star Trek Screen Saver-Berkeley Systems	$34.98
06519	The Disney Screen Saver Collection-Berkeley	$26.98
90042	The Playroom CD-Broderbund	$39.98
97731	The Tortoise and the Hare CD-Broderbund	$34.98
90573	Thinkin' Things II-Edmark	$39.98

Farallon

96800	Timbuktu Pro Single Pack	$125.98
96802	Timbuktu Pro 10-Pack	$659.98
96801	Timbuktu Pro Twin-Pack	$199.98

Fractal Design

98082	Fractal Design Dabbler 2	$43.98
00665	Fractal Design Painter 4	$339.00
93967	Fractal Design Painter 4 Upgrade	$119.49
91289	Fractal Design Poser	$89.76

GDT Software

00642	PowerPrint 3.0	$94.98
94262	StyleScript	$94.98
90060	IdeaFisher V6.0	$49.98

Globalink

95417	French Assistant	$47.98
95416	German Assistant	$47.98
95415	Italian Assistant	$47.98
95418	Spanish Assistant	$47.98

Insignia

03664	Access PC V3.0	$79.98
06786	RapidCD	$44.98
98475	SoftWindows 2.0 for Power Mac CD-ROM	$287.00
89308	SoftWindows 2.0 for Power Mac upgrade CD	$124.98
94287	SoftWindows for Mac	$275.00

Intuit

06164	MacInTax 1040 Final '95 w/$5 rebate	$39.98
93222	Quick8ooks 4 for Mac w/$25 Upgrd rebate	$122.98
89653	QuickBooks Pro for Mac w/$50 Upgrd rebate	$184.98

PageMill 1.0

#88414

Only $95.66

Adobe

89685	Quicken Deluxe CD 6	$59.98
04230	Quicken 6 for Mac	$41.98

JIAN

04257	BizPlanBuilder 5.0	$78.98
01045	EmployeeManualMaker 3.0	$91.98
04996	LivingTrustBuilder 4.0	$51.98
06827	Publicity Builder 2.0	$84.98

Kent Marsh

94266	Folderbolt Pro	$88.98
89686	Folderbolt Pro/NightWatch II Bndl	$119.98
04981	NightWatch II	$69.98

Leader Technologies

05690	PowerMerge 2.5	$78.98

Light Source

88809	Colortron Color System	$1,154.00
00657	OFOTO 2.0	$187.98

Lotus

00507	1-2-3 V1.1	$274.98

Macromedia

92266	Director Multimedia Studio	$1,379.00
04537	Fontographer V4.1	$307.98
88749	FreeHand 5.5 CD	$375.00
87152	FreeHand 5.5 Competitive Upgrade CD	$148.98
87150	FreeHand 5.0 to 5.5 Upgrade CD	$78.98
87151	FreeHand 4.0 or Earlier to 5.0 Upgrade CD	$148.98
92290	Graphic Design Studio	$619.00
97754	Macromodel 1.5 w/Renderman	$173.98
00839	Macromedia Director V4.0	$789.98
97770	SoundEdit 16 CD	$251.98
	Mainstay	
01159	MacFlow 4.0	$221.98
93218	Plan and Track	$191.98

MetaTools Software

06668	Kai's Power Tools V3.0	$110.98
95335	KPT Bryce 1.0	$72.00
92243	KPT Convolver 1.0	[illegible]
91258	KPT Vector Effects	[illegible]

Metrowerks

92853	CodeWarrior 8.0 Bronze	[illegible]
94281	CodeWarrior 8.0 Gold	[illegible]

Only $75.98

Connectix RAM/ Speed Doubler Bundle

#90149

Microsoft

99702	Cinemania 96 CD	[illegible]
95750	Encarta 96 CD	[illegible]
00227	Excel V5.0 Full Version	[illegible]
04545	Excel V5.0 Version Upgrade	[illegible]
04293	Flight Simulator V4.0	[illegible]
99696	FoxPro V2.6 Full Version	[illegible]
18059	Office V4.2.1 Upgrade	[illegible]
96024	Office V4.2.1 Upgrade CD	[illegible]
06300	PowerPoint V4.0 Full Version	[illegible]
04161	Project V4.0 Full Version	[illegible]
06184	Project V4.0 Upgrade	[illegible]
04898	Word V6.01 Full Upgrade	[illegible]
00596	Word V6.01 Upgrade	[illegible]
05750	Works 4.0	[illegible]

Nisus Software

03479	Nisus Writer 4.1 for Mac	[illegible]
93238	Nisus Writer w/Language Key 4.1	[illegible]

Now Software

06713	TouchBase & DateBook Pro 4.2 Deluxe CD	[illegible]
99120	Now Up-to-Date V3.5/Now Contact V3.5	[illegible]
04191	Now Utilities V5.0	[illegible]
92896	Optimem RAM Charger	[illegible]

OSC

96277	Deck II v2.2	[illegible]
96278	Metro 3.0	[illegible]

Pantone

89657	PANTONE Designers Survival Guide	[illegible]
04056	PANTONE Process Guide	[illegible]

Peachtree Software

02594	Peachtree Accounting	[illegible]
05745	Peachtree Insight Accounting	[illegible]

Quark

95320	QuarkXPress V3.32 for Mac/Power Mac	[illegible]

PhotoDisc

97349	PhotoDisc Starter Kit	[illegible]

Ray Dream

05965	addDepth	[illegible]
00441	Designer V4.0	[illegible]
04150	JAG II	[illegible]
89778	Ray Dream Studio	[illegible]
88707	Ray Dream Studio Upgrade	[illegible]

SoftKey

95594	American Heritage Talking Dictionary CD Mac/Win	[illegible]
03631	Calendar Creator 2.0	[illegible]
88847	Infopedia	[illegible]
00641	WriteNow V4.0 w/Correct Grammar	[illegible]

Specular International

99535	Collage	[illegible]
00815	Infini-D 3.1	[illegible]
95285	Logomotion	[illegible]

Stalker Software

90146	SCSIShare	[illegible]
92867	LineShare	[illegible]
92868	PortShare Pro	[illegible]

Strata

99509	StudioPro 1.75	[illegible]
04088	Vision 3D 4.0	[illegible]
89777	Strata Virtual Studio	[illegible]

Symantec

06231	ACT! V2.5	[illegible]
06997	Disk Doubler Pro V1.1	[illegible]
03481	MacTools 4.0 Pro	[illegible]
04890	Norton Utilities V3.2	[illegible]
93976	Norton Utilities V3.2 Upgrade	[illegible]
00116	SAM 4.0	[illegible]
04776	Suitcase V3.0	[illegible]
06243	Software Ventures MicroPhone Pro	[illegible]

T/Maker

91303	ClickArt Incredible Image Pak 25000	[illegible]

WordPerfect

96375	Grammatik V6.0	[illegible]
03972	WordPerfect V3.5 Full Version	[illegible]
05013	WordPerfect V3.5 Upgrade	[illegible]

Call MAC BARGAIN$ before you buy!

1-800-619-9091

Why get slower ground shippin

Overnight Delive

Only $6.00 and up

Add applicable sales tax (only in GA, OH, WA). All shipments refer to "In stock" items, barring system failure, etc. Not responsible for typographical errors. Credit cards are not charged until the order is shipped. Most products ship the same day for overnight delivery. Orders over 10lbs charged actual freight. Call for international shipping rates. Packaging and handling up to $6 per order for delivery in the USA. Returns subject to a restocking fee. Prices and product availability subject to change without notice. Specials and promotions may be limited to stock on hand.

For the Best Deals Around!

1-800-619-9091

PUTERS

Power Computing

Powerwave 604/120 8/1GB/CD Desktop	$2,869.00
Powerwave 604/132 8/1GB/CD Desktop	$3,319.00
Powerwave 604/132 8/1GB/CD Tower	$3,369.00
Powerwave 604/150 8/1GB/CD Tower	$4,169.00
Powerwave 604/150 8/1GB/CD Tower	$4,669.00

ITORS

Sony

Multiscan 15sx	$429.98
Multiscan 15sf II	$519.98
Multiscan 17sf II	$858.98
Multiscan 17se II	$1,099.00
Multiscan 20sf II	$1,898.00
Multiscan 20se II	$1,998.00

Radius

20GS 20" Monochrome	$849.98
Intellicolor 20e Display	$2,099.00
PrecisionView 17"	$1,079.00
PrecisionView 21"	$2,299.00

NEC

NEC XE15 15" Color Mtr	$558.98
NEC XE17 17" Color Mtr	$998.26
NEC XP 17 17" Color Mtr	$1,039.00
NEC XP 21 21" Color Mtr	$2,169.43
NEC XE 21 21" Color Mtr	$1,769.26

O/GRAPHICS BOARDS

ATI

Exclaim GA 2MB PCI	$348.98
Exclaim GA 4MB PCI	$457.98
Exclaim GA 2MB Upgrade	$236.98

Connectix

QuickCam	$97.98

Focus

LapisColor 16 for LC	$314.00
LapisColor 16 Nubus (7")	$314.00

Radius

PrecisionColor Pro 24XK	$524.98
Spigot Power AV	$849.98
Thunder24 GT	$524.98
Thunder IV GX 1152	$1,897.00
Precision Color 8/1600 PCI	$455.98
Thunder 30/1600 PCI	$1,147.00
ThunderColor 30/1600 PCI	$1,897.00
ThunderColor 30/1152 PCI	$1,499.00
VideoVision Studio 2.0	$2,849.00

Roster Ops

PaintBoard Prism Video Card	$298.98
PaintBoard Prism GT w/Painter 3.0	$549.00
Targa 2000 PCI	$4,799.00

ELERATORS

Daystar

PowerCard 66Mhz	$599.98
Turbo 601 100Mhz for IIci	$1,198.00
Turbo 601 100Mhz for IIsi	$1,198.00
Turbo 601 100Mhz for IIvi, vx P600	$1,198.00
Turbo 601/66Mhz	$649.00

DVC

Equalizer for PowerMac 6100/7100/8100	$69.98

Extreme Systems

Impact 030 LC/LCII/Performa 400	$189.98
Impact 030 Color Classic	$189.98
Impact 030 w/o Cache for LC/Mac II/P400	$109.00
Impact 030 w/o Cache for Color Classic	$109.00

Newer Technology

Power Clip for 6100/7100	$79.98

ORY

30pin SIMMS

2MB 80ns Upgrade Kit (2-1MB SIMMS)	$64.98
4MB 80ns Upgrade Kit (2-2MB SIMMS)	$131.98
8MB 80ns Upgrade Kit (2-4MB SIMMS)	$277.98
16MB 80ns Upgrade Kit (4-4MB SIMMS)	$535.98

72pin SIMMS

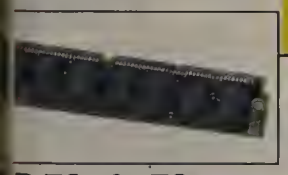
4MB 60ns SIMM (1x32)	$105.98
4MB 70ns SIMM (1x32)	$104.98
8MB 60ns SIMM (2x32)	$289.98
8M8 70ns SIMM (2x32)	$219.98
16M8 60ns SIMM (4x32)	$489.98

168pin DIMMS

8MB 70ns DIMM (1x64)	$269.98
16MB 70ns DIMM (2x64)	$469.98
32M8 70ns DIMM (4x64)	$1,049.00
64M8 70ns DIMM (8x64)	$2,049.00

PowerBook 500 Series

4MB Mem Module for 520/520c/540/540c	$169.98
8MB Mem Module for 520/520c/540/540c	$294.98



B 72 pin 70ns 32) SIMM

729

Only $113.98

PowerBook 5300 and 190 Series

4MB Mem Module for 5300/190	$220.00
8MB Mem Module for 5300/190	$304.98
16MB Mem Module for 5300/190	$643.49
32MB Mem Module for 5300/190	$1,199.00

VRAM

1MB VRAM DIMM for 7200/7500/8500	$52.98

WORKING

Asante

10T FriendlyNet Adapter	$39.98
10T HUB/8 w/ 10T/TN Ports	$169.98
94145 MacCon-i LC 10T	$94.98
98802 MacCon-i LC TN	$104.98
03646 MC+30IET64 IISI & SE/30 (TK/10T)	$145.98
94118 Micro EN/SC for PowerBooks 10T	$207.00
96840 NetExtender Hub (AUI/10T)	$119.98
96841 NetExtender Hub FN (AAUI/10T)	$129.98
05499 Thin FriendlyNet Media Adapter	$54.98

Farallon

98409 EtherWave AAUI Transceiver	$94.98
98408 EtherWave AUI Transceiver	$96.98
98412 EtherWave LC Card	$168.98
93339 EtherWave Multi Printer Adapter	$335.98
98411 EtherWave NuBus Card	$169.98

COMMUNICATIONS/MODEMS

Global Village

05684 PowerPort Gold	$186.98
94388 PowerPort/Mercury for PowerBook 5XX	$318.98
01167 PowerPort/Platinum for PowerBook 1XX	$324.98
89313 PowerPort Platinum V.34 PC Card	$315.98
89312 PowerPort Platinum Pro V.34/10-T PC Card	$474.98
93748 TelePort Gold II	$103.98
01155 Teleport Platinum V.34 for Desktop Macs	$194.00

Motorola

90622 Power V.34 Data/Fax Modems	$253.98

Practical Peripherals

90600 MacClass MC288T2-EZ PCMCIA	$328.98
92951 MacClass MC288MT II v.34	$179.35

Supra

93719 FAXNetwork Software Server	$69.98
93721 FAXNetwork Software 10 User	$189.98
93736 Supra Express 144 Plus	$95.98
06865 Supra FaxModem 144PB Int - PowerBook	$155.98
90212 Supra FaxModem 288 V.34 Int for PB	$239.00
89309 Supra Express 288 V.34 FaxModem	$169.00
00413 Supra FaxModem V.32BIS (MC) w/Sft Cable	$173.98

TDK

91807 TDK 28.8 PCMCIA Fax/Modem for Apple 5xx	$279.98

US Robotics

93701 Mac & Fax Sportster 14.4	$111.98
92953 Mac & Fax Sportster 28.8 V.34	$199.89

STORAGE DEVICES

Apple Hard Drives

89873 2150MB Ext HD	$939.98
93568 1080M8 Ext HD	$489.98
95338 540MB Ext HD	$369.98

Fujitsu

01180 DynaMD 230MB Optical Drive	$478.98

SyQuest 135MB Cartridge

#24998

As Low As $20.98 EA

86800 PowerBook DynaMD Int 230MB	$299.98

FWB

06271 CD-ROM Toolkit	$47.98
00555 Hard Disk Toolkit	$115.98
05476 Hard Disk Toolkit - Personal Ed	$46.98
94121 SCSI JackHammer	$449.00
90124 PCI SCSI JackHammer	$389.00

Iomega

93320 Iomega MacTransportable 230	$452.98
91825 Zip Drive	$198.00

LaCie

03949 Q Drive External 1080MB	$459.00
03698 D Drive External 540M8	$339.00

Microtech International

89609 Polaris 500MB Ext	$294.98
89611 Polaris 1.0G8 Ext	$449.98
89612 Polaris 2.0GB Ext	$939.98

Olympus

89942 Deltis Power 3.5" MO 230MB	$579.98
89934 Deltis 5.25" 1300 MD	$1,179.00
89935 Deltis 2x Recordable CD	$1,279.00

Performantz

90454 1.0GB Mini Ext HD	$329.98
89164 Quantum 1.0GB Ext HD	$419.00
89164 Barracuda 2.1GB Ext HD	$979.00

Pinnacle Micro

92403 RCD 1000 Recordable CD-Rom	$1,439.00
93302 Sierra 1.3GB Optical	$1,769.00
93301 Tahoe 230M8 Optical	$749.00

SyQuest

24935 EZ135 SCSI Drive & Cart	$223.98
01142 Performantz 200MB w/o cartridge	$409.98
97989 Performantz 270M8 w/o cartridge	$399.98
06538 Performantz 44/88M8 w/o cartridge	$312.98

MEDIA

Fuji

90983 3.5" Optical Disk 230MB Mac Format	$34.98
86836 74min CD-R 10-Pack ($25 Rebate)	$89.00
05717 DG90M 4mm Data Grade 1.95GB	$7.95

Iomega

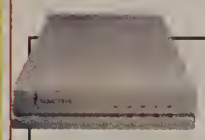
96824 Bernoulli Multidisk 90M8 Cart	$87.98
97291 Bernoulli Multidisk 150M8 Cart	$89.98
22336 Iomega Zip 100MB Cart	$18.49
91161 Iomega Zip 100M8 Cart 10-Pack	$139.98
91160 Iomega Zip 100M8 Cart 3-Pack	$47.98

SyQuest

24998 EZ135 Cart (Single)	$20.98
24909 EZ135 Cart 5-Pack	$94.98
24910 EZ135 Cart 10-Pack	$179.98
99922 SyQuest 105MB Cart	$57.98
00278 SyQuest 200MB Cart	$75.98
97992 SyQuest 270MB Cart	$61.98
02183 SyQuest 44MB Cart	$40.00
00183 SyQuest 88M8 Cart	$45.98

Verbatim

21922 CD-R 4x 74min	$8.98



CyberPort 14.4 Data/Fax Modem

#90234

Only $49.98

01169 230MB 3.5" R/W 1024b/s MD Cart	$8.49
90985 8mm DL 112m Data Tape	$8.49

CD-ROM/MULTIMEDIA

NEC

90485 NEC 6XE CD-RDM	$489.98

Performantz

01124 Performantz 4x Quad CD-RDM	$195.98
89936 Performantz 4x Multimedia Kit	$298.98

Sony

91947 4X Speed CD-Rom CSD-7611	$312.72
01172 Computer Speaker System CSS-B100	$64.98
91982 Spressa CD-Recorder CD CSP-9211S	$1,589.00
13166 SRS-D2K Speakers w/ Subwoofer	$134.98
91944 SRS-D4K Speakers w/Subwoofer	$199.98

SCANNERS

Agfa

02135 Arcus II	$1,979.00
02102 StudioScan	$599.98
89851 StudioScan IIsi	$889.00

Epson

91939 ES-1000C	$737.00
02133 ES-1200C	$949.98

Hewlett Packard

87989 ScanJet 4C	$949.98

Nikon

06926 Coolscan	$1,289.00
89921 Super Coolscan LS-1000	$1,953.00
01174 Scantouch Flatbed Scanner	$1,117.00

Polaroid

01192 SprintScan 35mm Filmscanner	$1,499.00

Umax

01193 Vista S6 Pro 2	$649.00
91968 Vista S8 Pro 2	$773.98
01189 Powerlook Pro 2 w/TMA	$1,890.00
89198 Gemini D-16 Scanner LE	$1,475.00
87953 Gemini D-16 Scanner Pro	$1,575.00

Visioneer

01193 PaperPort Vx for Macintosh	$349.98

INPUT DEVICES

Adesso

91099 Tru-form Extended Keyboard w/Pointer	$99.98

Alps

92698 Alps Glidepoint for Mac	$56.98

Colcomp

91862 Drawing Slate II 12x12 w/Pressure Pen	$224.00
91870 Drawing Slate II 6x9 w/Fractal Painter 3.0	$419.98
91864 Drawing Slate II 6x9 w/Pressure Pen	$194.00

Kensington

93628 Thinking Mouse ADB	$84.98
05176 TurboMouse 4.0 Trackball w/4.1 Software	$99.98

Wacom

90643 ArtPad II (AD8) w/Erasing UltraPen	$139.00
90644 ArtPad II (ADB) w/ Dabbler Bundle	$149.98
90646 Artz II 12x12 (Serial) w/Erasing UltraPen	$399.98
90645 Artz II 6x8 (AD8) w/Erasing UltraPen	$297.98
98645 UD-1212RM Tablet w/UltraPen	$189.98

PRINTERS

Accessories

05765 Macintosh DIN 8 Printer Cable	$6.48
97855 Port Juggler	$84.00

Epson

20670 Stylus Color II Ink Jet	$448.98
89901 Stylus Color Pro Ink Jet	$789.00
87980 Stylus Pro XL Ink Jet	$1,778.00

Hewlett-Packard

86809 HP Deskjet 340CM Portable Printer	$339.98
88902 HP DeskWriter 600	$298.98
94057 HP DeskWriter 660C InkJet	$389.98
23786 HP LaserJet 5MP	$1,044.00

Texas Instruments

19899 MicroLaser Power Pro	$1,593.00
14319 MicroLaser Pro 600 PS23	$1,196.98
93692 MicroLaser Pro E	$1,369.00

Tektronix

92531 Tektronix Phaser 140	$1,195.00
90628 Tektronix Supply Startup Kit	$179.98

POWER BACKUP

APC

94396 APC Personal Surge Arrest	$18.98
94395 APC Personal Surge Arrest w/Phone	$27.98
07150 BackUps 280	$99.98
99364 BackUps 400	$148.98
11651 BackUps 600	$259.98

MOBILE COMPUTING

Targus

06610 Leather Notebook Case	$89.00
06023 Notepac (4 color choices)	$29.98
07454 Universal Notebook Case	$59.98

Apple CPUs are here!
Call for details

Only $649

DayStar 66MHZ Turbo 601for IICI

- PowerPC performance for Mac II's and Performas
- Runs standard applications up to twice as fast
- Runs PowerPC-accelerated applications from 7 to 10 times faster
- Plug-and-play performance and compatibility
- 1 MB secondary cache
- For more information, e-mail keyword TURBO601

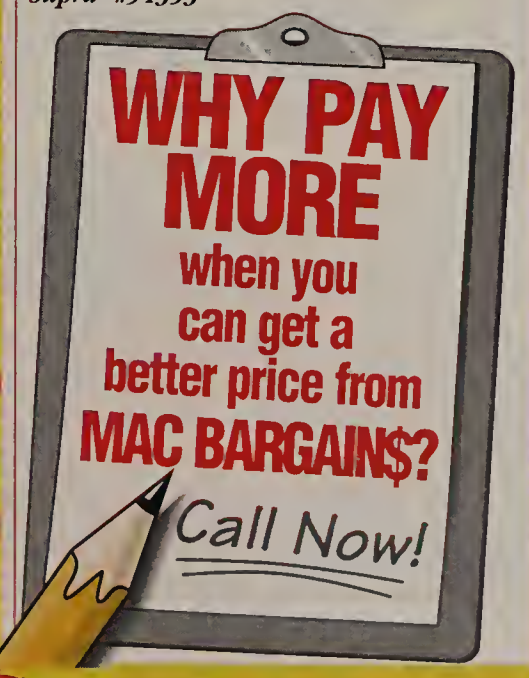
DayStar #92169

Only $205

Supra FAXModem V.34 288 External Mac

- 28,800 bps data – twice the speed of current V.32bis standard modems
- 14,400 bps fax capability
- State-of-the-art V.42bis 4:1 data compression for up to 115,200 bps throughput
- Silent Answer lets you receive both fax and voice calls on the same phone line
- For more information, e-mail keyword SUPRA288

Supra #94353



DI$COUNT PRICE$ ON QUALITY HARDWARE, $OFTWARE & ACCE$$ORIE$

IF YOU DON'T SEE IT... CALL!

MAC BARGAIN$

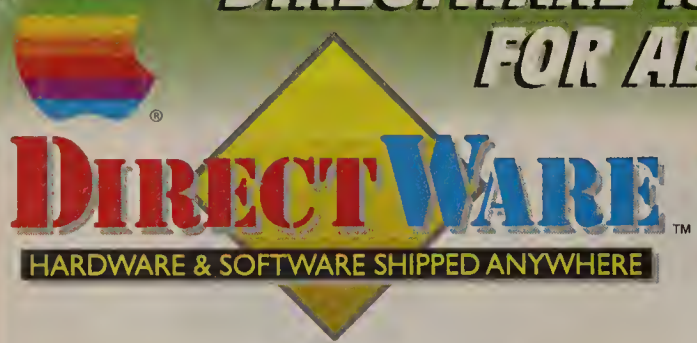
FAX: 1-206-603-2520 INT'L PHONE: 1-206-603-2570
E-Mail Address: mac.bargains@mzi.com
15815 S.E. 37th Street, Bellevue, WA 98006-1800

©1996 MZI, Inc. Bellevue, WA ™Trademarks of all companies listed in this ad. All rights reserved.

Knowledgeable Sales Advisors help make buying easy!

YOUR SOURCE CODE BW604

DIRECTWARE IS YOUR AWARD WINNING SOURCE FOR ALL MACINTOSH PRODUCTS!



1•800•490•WARE

Open 6am to 8pm (PT) M-Sat
Customer Service hours: 7am to 6pm M-F (PT)

INTERNATIONAL ORDERS 310.793.4444 • CUSTOMER SERVICE 310.793.4580
24-HR FAX ORDER LINE 310.793.7175 • FAX ON REQUEST 310.793.8606
SEND MAIL ORDERS TO: DirectWare Order Dept., 19950 Mariner, Bldg B, Torrance, CA 90503
INTERNET CATALOG: http://www.directware.com

BEST SELLERS

BUNGIE
MARATHON 2 "DURANDAL"
Network play with 3D texture map graphics
#173709 $42.99

UMAX
PAGE OFFICE
Personal Scanner and Automatic Input Device
#173803 $299.99

IOMEGA
JAZ 1GB PORTABLE
12ms access time and includes cartridge
#172902 $579.99

INTUIT
QUICKEN 6 DELUXE CD
Organize your finances for '96
#174045 $59.99
Quicken 6 (3.5" Disks).....#174040 $44.99

INTUIT
MacInTax 1040 DELUXE CD 1995 FINAL
1995 taxes made simple and easy
#181256 $44.99
1040 Deluxe 3.5" Disks.....$39.99 #181248

PRINTERS

HEWLETT PACKARD
LASERJET 5MP
Postscript Level 2 600dpi laser printer
#139902 $995.99

HEWLETT PACKARD
DESKJET 850C
600dpi color inkjet with one year warranty
#167115 $498.99

EPSON
STYLUS II
720dpi color inkjet
#172145 $399.99

TEXAS INSTRUMENTS
MICRO LASER 600
600dpi laser printer with Postscript Level 2
#113699 $849.99

COSTAR
LABEL WRITER XL
The best label printer! Perfect for home or office use.
#106435 $149.99

MONITORS

NEC
MULTI SYNC XV17 PLUS
17" Color Monitor
#186863 $799.99

VIEWSONIC
15GA PERFECT SOUND
15" Color Monitor
#144932 $524.99
17GA PerfectSound....#144933 $795.99

PORTRAIT DISPLAY
PIVOT 1700
.28mm 17" color monitor
#169768 $969.99
Pivot 1700 17" .26mm ..#175577 $1029.99

SONY
MULTI SCAN 17SF2
17" Trinitron
#182892 $879.99
17SE2 17" Trinitron.....#183004 $1095.99

SONY
MULTI SCAN 15SF2
15" Trinitron (13.9 viewable)
#182341 $509.99

MULTIMEDIA

METATOOLS
KAI'S POWER TOOLS 3
Hottest Photoshop Plug-ins
#176381 $119.99

ALIENSKIN
BLACK BOX 2.0
Produce Pro Images in Photoshop faster
#183189 $97.99

FRACTAL
PAINTER 4 UPGRADE
The best painting program for the Mac
(3.5" Disks) #182818 $125.99

PASSPORT
ALCHEMY
Powerful stereo sound editing and modeling
#168696 $234.99

VIRTUS
WALKTHROUGH PRO 2.5
Now create VRML for Internet
#900097 $281.99

SPECIALS

WEB SITE OF THE MONTH

- DAILY SPECIALS • CONTESTS
- ONLINE CATALOG
- SOFTWARE DOWNLOADS
- WEB SITE LINKS • VISIT TODAY!

http://www.directware.com

UMAX
POWERLOOK II
Full 36-bit color scanner with transparency adapter. Includes Full Photoshop 3.0, WordLink OCR and more!
#900372 $2995.99

GLOBAL VILLAGE
TELEPORT PLATINUM 28.8 V.34
Fax/Modem
#106685 $198.99

CALL FOR GIANT FREE CATALOG!

*TERMS: For your protection we ship only to your verified billing address. Non-defective returns subject to a restocking fee. No returns accepted without an RMA# (call customer service). Most software and memory chips are not returnable, unless covered by a manufacturer return policy. Next day service available most areas. Certain product cannot be shipped outside of U.S. While we do our best to check for errors, occasionally mistakes can occur. Prices and availability are subject to change. Call for current pricing. For faster service, our system recognizes existing customers by phone number to instantly locate prior order records and information. All trademarks used to benefit and without intent to infringe on mark holders. Call for business leasing. Copyright © 1996 DirectWare

Fax-on-Request Service
Get detailed information on products from APC, Adesso, UMAX, Microtek, Newer, Claris and more! Simply follow directions, and get the facts by fax!
24-Hr. Fax-on-Request Service 310.793.8606

ENTER TODAY!! You could WIN a Radius 81/110 Power PC!!!

HURRY! Entries must be received by March 24,1996!

BOCA WARE-EVER V34
28.8Kbps data modem with 14.4Kbps send/receive. FREE AOL Internet Kit! 10 Free hours. **$137.99** #900062

FREE INTERNET TOTAL ACCESS™ WITH ANY ORDER
Includes: Netscape Navigator and Eudora E-Mail, plus Earthlink Network Registration Kit!

Business Leasing Available!

HOT NEW PRODUCTS!

MACROMEDIA
DIRECTOR MULTI-MEDIA STUDIO 1.5
Includes Director, FractalDesign Painter, SoundEdit 16 and Extreme 3D #184222 **$1379.99**
DIRECTOR 4.0 .....$819.99 #106828

PINNACLE MICRO
APEX 4.6 GB OPTICAL DRIVE
Faster than the average hard drive. 4.6 GB capacity per removable disk. #900281 **$1594.99**
4.6 Optical cartridge.....#171243 $194.99

MACROMEDIA
EXTREME 3D
The most powerful solution for 3D graphics, animation, modeling rendering and compositing. #184223 **$479.99**

SYQUEST
SYJET 1.3GB
The perfect solution for multimedia. Includes FREE application and utility software #900406 **$589.99**
SYJET 1.3 GB cartridge $99.99 #900408

CLARIS
FILEMAKER PRO 3.0 UPGRADE
The Worlds Best Database Software is NOW Completely Relational #900143 **$94.99**

GRAPHICS

EPSON
ES 1000C Color Scanner 800dpi
30Bit Color #147552 **$749.99**
-1200C Color Scanner $1159.99 #139556

HEWLETT PACKARD
ScanJet 4C
High Performance Color Scanner 600dpi #175368 **$969.99**

ADOBE
PHOTOSHOP 3.0
Photo design and production tool #116124 **$524.99**

ADOBE
ILLUSTRATOR 6.0
The leading illustration and design tool #900066 **$389.99**

SMART & FRIENDLY
CD-R1002 INT Pro Recorder
Complete CD Recordable Kit #900397 **$898.99**
CD-R1002 Ext Recorder$1098.99 #900398
CD-R Media 74 min .....$6.99 #900401

STARNINE
WEB STAR
Apple Recommended Web Server Software #900375 **$449.99**

VENTANA
HOT METAL PRO 2.0
Most Popular HTML Tool #900060 **$167.99**

ADOBE
PAGE MILL
Easiest way to create web pages #900059 **$94.99**

NEW MEDIA
NET SURFER
28.8 PCMCIA Powerbook modem with 14.4 fax #900411 **$229.99**
14.4 Netsurfer Fax/Modem $129.99 #900412

SUPRA
28.8 V.34 Modem
SupraExpress 28.8 New Lower Price #169340 **$153.99**

SCSI STORAGE PRODUCTS

Seagate
ST32430N
2GB SCSI 3.5" #133039 **$695.99** BEST BUY!

MODEL	CAPACITY	PART #	PRICE
ST15230N	4GB SCSI 3.5"	#138676	$959.99
ST32550N	2GB SCSI 3.5"	#132795	$739.99
ST15150N	4GB SCSI 3.5"	#131679	$1,199.99
ST15150W	4GB SCSI-W 3.5"	#106222	$1,259.99

All drives shown are "raw" mechanisms w/o case or software.
Anubis formatting software $8.99 #900367

Quantum
QTM10805
1.08GB SCSI 3.5" #161449 **$254.99** BEST BUY!

MODEL	CAPACITY	PART #	PRICE
QTM850S	850MB SCSI 3.5"	#161447	$194.99
Atlas	2.1GB SCSI 3.5"	#110834	$699.99
Atlas	4.3GB SCSI 3.5"	#179729	$899.99

CyberRam NEW!
Call Today for Exceptional Pricing on Memory with Lifetime Warranty!

GET a FREE Catalog Subscription and You Could Win a Radius PowerPC!!

Name _____
Address _____
City _____ State ____ Zip ____

I use a: ❑ Mac ❑ PC ❑ Both ❑ Have office at home ❑ Have CD-ROM
❑ Run business from home ❑ Have Powerbook ❑ Use internet
❑ Use another online service ❑ Use Mac for Multimedia/Publishing

Mail contest entries only to:
DirectWare, Box 11191, Dept MW962, Torrance, CA 90510

Limit one entry per person, group or household. Must be 18 to enter. Void where prohibited by law. Open to U.S. residents not employed by DirectWare, NovaQuest or their business partners' employees. Random drawing to be held March 30, 1996. Winner will allow use of likeness and name in catalog for promotional purposes, without further compensation. One Grand Prize winner of Complete Radius System. You may also enter the contest from our Internet Web Page. Odds of winning will depend on the total number of entries received. For the name of the winner, send a self-addressed, stamped envelope marked "Radius Contest Winner Name" to the P.O. box address noted above. All [illegible] of the winner. Entries must be received by March 24, 1995 to be eligible.

COUPON SPECIALS

Momentum
PORT JUGGLER 3.0 #900210 **$89.99**

Hitachi
STUDIO PAD GRAPHICS TABLET #900154 **$159.99**

CIRQUE
GLIDEPOINT DESKTOP CONTROL AT YOUR FINGERTIPS #900137 **$59.99**

No Credit Card Surcharges

Discount Code MW963

FedEx 2nd Day Air at Ground Rates

DIRECTWARE™
HARDWARE & SOFTWARE SHIPPED ANYWHERE
1•800•490•WARE
Internet: http://www.directware.com

Please circle 88 on the Reader Response Card!

1-800-786-1184

- For a full listing of our products, check out our home page at: http://www.megahaus.com
- Selling quality drives at incredibly low prices Since 1987.
- 30 Day return policy.
- Fast service. Most orders shipped same day!
- Lifetime technical support.
- Friendly, helpful staff. We appreciate your business!

HARD DRIVE SPECIALS

		Internal	External
1 Gig	5400rpm	$240	$299
1.6Gig	4500rpm	$279	$339
2Gig	7200rpm	$629	$689
4Gig	7200rpm	$899	$959
9Gig	5400rpm	$1799	$1899

Quantum™

#1 HARD DRIVE FOR MAC!

MegaHous is your #1 source for Quontum drives.
- Low price guorontee on all Quantum drives!
- Some doy shipping on most orders!

Copacity	Speed	RPM	Buffer	Wty	Model	Internol	Externol
850MB	14ms	4500	128K	3yr	TB850S	$190	$250
1080MB	12ms	5400	128K	3yr	FB1080S	$250	$310
2150MB	8ms	7200	1024K	5yr	XP32150	$720	$780
2216MB	8.5ms	5400	512K	5yr	VP32210	$625	$685
4300MB	8.6ms	7200	512K	5yr	XP34301	$985	$1045

SyQuest®

TECHNOLOGY

MegaHaus is your #1 source for SyQuest drives.
- Low price guorontee on all SyQuest drives!
- 1 FREE cortridge with eoch drive!
- 2 yeor worronty on drive ond cose!
- 5 yeor worronty on oll cortridges!
- Same doy shipping on most orders!

OUR PRICE INCLUDES 1 DISK!

Genuine SyQuest cartridges
Qty 4-9 / 10+ or with drive.

44MB	$42	$40
88MB	$47	$45
105MB	$53	$50
200MB	$76	$71
270MB	$59	$56

Copocity	Speed	Compatible	Model	Buffer	Internol	Externol
88MB	20ms	44, 88MB	SQ5110C	32K	$298	$358
135MB	13.5ms	135MB	EZ135S	128K	n/o	$229
200MB	18ms	44,88,200MB	SQ5200C	64K	$379	$439
270MB	13.5ms	105, 270MB	SQ3270S	128K	$369	$429

CD ROM RECORDER PRICE BREAKTHROUGH

$899 with 1 free disk

$999 with 20 free disks

- Complete externol pockoge includes everything you need!
- High quolity drive, with Incot Eosy-CD Pro sottwore.
- Double speed recorder & reader.

CDR-74 disks
Qty 10 $7.69ea
Qty 25 $6.79ea
Qty 50 $6.59ea
Qty 100 $6.29ea
Qty 500 $5.99ea
Qty 1000 $5.59ea

OPTICAL DRIVES

230MB FUJITSU
- Read and write 128 or 230MB disks

$479 1 free disk. Extra disks only $19.

1.3 Gig NEC
- Read and write 650MB or 1.3Gig disks
- 2 Year warranty! 1MB data buffer.

$1159 1 free disk. Extra disks only $59.

4.6 Gig PINNACLE MICRO
- Read ond write 2.3Gig or 4.6Gig disks
- 512K data Buffer. 1 year warranty.

$1499 1 free disk. Extro disks only $189.

CD ROM DRIVES

4X	Sanyo	190ms	$147
4.4X	Pioneer	140ms	$185
6X	NEC	150ms	$315
6.7X	Toshiba	120ms	$345

FUJITSU 2 Gig Wide SCSI

M2915W		With Controller
Internal	$619	$749
External	$749	$919

TAPE BACKUP SALE

2Gig	Conner	Minicartridge	$478
2Gig	HP	DAT	$799
2-4Gig	HP	DAT-DC	$899
4-8Gig	HP	DAT-DDS2	$1079

Includes 1 tape & NovoMoc backup software.

Brand	Capacity	Seek	RPM	Buffer	Wty	Model	Internal	External
Seagate	1050MB	9ms	5411	512K	5yr	ST31231N	$349	$409
Seogote	1080MB	12.5ms	5400	128K	3yr	ST51080N	$285	$345
Conner	1080MB	9ms	5400	256K	5yr	CFP1080S	$249	$309
NEC	1083MB	11ms	4090	256K	3yr	NEC3827	$215	$275
NEC	1620MB	11ms	4500	256K	3yr	NEC3847	$279	$339
Micropolis	2050MB	8.5ms	7200	512K	5yr	MC4221	$639	$699
Micropolis	2050MB	8.5ms	7200	512K	5yr	MC4221AV	$699	$759
Conner	2147MB	9ms	5400	512K	5yr	CFP2105S	$599	$659
Seagote	2147MB	9ms	5411	512K	5yr	ST32430N	$619	$679
Seagate	2147MB	8ms	7200	512K	5yr	ST32550N	$679	$739
Seagate	4290MB	9ms	5400	512K	5yr	ST15230N	$925	$985
Seogote	4290MB	8ms	7200	1024K	5yr	ST15150N	$1159	$1219
Micropolis	4294MB	8ms	7200	512K	5yr	MC3243	$960	$1020
Micropolis	4294MB	8ms	7200	512K	5yr	MC3243AV	$1039	$1099
Conner	4294MB	9.5ms	7200	512K	5yr	CFP4207S	$939	$999
Micropolis	9100MB	12ms	5400	512K	5yr	MC1991	$1879	$1979
Micropolis	9100MB	12ms	5400	512K	5yr	MC1991AV	$1999	$2099
Seogote	9090MB	11ms	5400	1024K	5yr	ST410800N	$2019	$2119
WIDE SCSI (WIDE SCSI controllers Adaptec PCI $299, Atto Nubus $839 with WIDE SCSI drive purchase.)								
Micropolis	2050MB	8.5ms	7200	512K	5yr	MC4221W	$729	$829
Micropolis	2050MB	8.5ms	7200	512K	5yr	MC4221WAV	$789	$889
Seogote	2147MB	8ms	7200	512K	5yr	ST32550W	$849	$949
Fujitsu	2176MB	9.5ms	7200	512K	5yr	M2915W	$579	$639
Seagote	4290MB	8ms	7200	1024K	5yr	ST15150W	$1219	$1319
Micropolis	4294MB	8ms	7200	512K	5yr	MC3243W	$1059	$1159
Micropolis	4294MB	8ms	7200	512K	5yr	MC3243WAV	$1135	$1235
Fujitsu	4350MB	8.9ms	7200	512K	5yr	M2934W	$949	$1049
Micropolis	9100MB	12ms	5400	512K	5yr	MC1991W	$1999	$2199
Micropolis	9100MB	12ms	5400	512K	5yr	MC1991WAV	$2099	$2299

MEGAHAUS
The Drive Authority

M-F 8-8 Sat 9-3 Central
Local (713) 534-3919
Fax (713) 534-6580
TTY (Deaf Line) 1-800-473-0972
No Internotionol orders occepted.

April 1996 MacWorld

2201 Pine Drive
Dickinson, Texas 77539
Internet http://www.megahaus.com

Prices and specifications subject to change. Some exceptions may apply to low price guarantee. All trademarks are registered trademarks of their respective companies. Returns must be in new condition, and may be subject to restocking fee. Shipping is not refundable. Personal checks held for clearance. © MegaHaus 1995

Circle 245 on reader service card

WE WILL TRY TO MATCH OR BEAT ANY ADVERTISED PRICE. CALL FOR LATEST PRICING!!

WE ACCEPT PO'S FROM QUALIFIED FIRMS

M E M O R Y

SECURITY WILL CALL WINDOW NOW OPEN!
NO SURCHARGE FOR MC, VISA AE & DISCOVER

L.A. Trade has served the PC market for 10 years...

MACINTOSH MEMORY UPGRADES

Now we bring our expertise to the Apple Macintosh user.

YOUR MACHINE	STANDARD	MAX	VIDEO UPGRADE	VIDEO COST	256K/512K CACHE	2MB	4MB	6MB	8MB	10MB	12MB	16MB	32MB	64MB
Apple PowerBook 190, 190CS, 5300	4	32					169		317		527	579	1299	
Apple PowerBook 520, 520c, 540, 540c Notebook	4	36					169		319			619	1199	
Apple PowerBook DUO 210, 230, 250 Notebook	4	24					179		339		499			
Apple PowerBook DUO 270c Notebook	4	32					179		339		499		20 mg=789	
Apple PowerBook DUO 280, 280c Notebook	4	40					179		339		499			
Apple PowerBook DUO 2300c/100 Notebook	4	40					Call		Call		Call			
Apple Macintosh TV	5	8					109							
Apple Macintosh IIfx	4	128					165					729		
Apple Macintosh IIsi	2/3/5	17					140		336			516		
Apple Macintosh IIvx & IIvi	4	68	512k	59			140		336			516		1980
Apple Macintosh Classic						153								
Apple Macintosh Color Classic	4	10	256k	34		70	130		258					
Apple Macintosh Classic II, LC, LCII	2/4	10	512k	59		70	130		258					
Apple Macintosh LCIII, LC475, LC550, LC575	4	36	256k	34			109					419	899	
Apple Macintosh LC520	5	36					109					419	899	
Apple Macintosh LC580	5	36					109					Call	899	
Apple Macintosh LC630	4	36					109					419	899	
Apple Macintosh LC5200	5	36					109					Call	899	
Apple Macintosh IIcx	1	128					130					516		2076
Apple Macintosh II, IIx	1	32					130					516		
Apple Macintosh Plus, SE	1	4				70	130							
Apple Macintosh SE30	1/2	32				70	130		258			516	1112	
Apple Performa 200	2	10				70	130		258					
Apple Performa 400	4	10				70	130		258					
Apple Performa 405, 410, 430	4	10				70	130		258					
Apple Performa 450, 460, 466, 467, 475, 476	4	36	258k/512k	34/68			109		219			419	899	
Apple Performa 550, 575, 577	5	36					109		219			419	899	
Apple Performa 600, 600CD	4	68	512k	59			130		279			529		1980
Apple Performa 6110CD, 6112CD, 6115CD (pairs)	8/16	72					109		219			419	899	
Apple Performa 6117CD, 6118CD (pairs)	8/16	72					109		219			419	899	
Apple Performa 630	4	36					109		219			419	899	
Apple Centris 610	4	68	512k	59			109		219			419	899	
Apple Centris 650	4	132	512k	59			109		219			419	899	
Apple Centris 660AV	4	68					109		219			419	899	
Apple Quadra 605	4	36	512k	59			109		219			419	899	
Apple Quadra 610	4	68					109		219			419	899	
Apple Quadra 630	4	36					109		219			419	899	
Apple Quadra 650	4/8	132/136					109		219			419	899	
Apple Quadra 660AV	4	68					109		219			419	899	
Apple Quadra 700	4	68	512k	59			140					516		1980
Apple Quadra 800 (pairs)	8	136	512k	59			109		219			419	899	
Apple Quadra 840AV	8	128	512k	59			109		219			419	899	
Apple Quadra 900	4	256	512k	59			140					516		1980
Apple Quadra 950	8	256	512k	59			140					516		1980
Apple Workgroup Server 60 (pairs)	4	68					109		219			419	899	
Apple Workgroup Server 80 (pairs)	8	136					109		219			419	899	
Apple Workgroup Server 95	16/32/48	256					140					516	1112	
Apple Workgroup Server 6150 (pairs)	8	72					109		219			419	899	
Apple Workgroup Server 8150 (pairs)	16	264					109		219			419	899	
Apple Workgroup Server 9150 (pairs)	16/24	264					109		219			419	899	
Apple Power Macintosh 6100/60 (pairs)	8	72	512k	59			109		219			419	899	
Apple Power Macintosh 7100/66 (pairs)	8	136	512k	59			109		219			419	899	
Apple Power Macintosh 7200 Catalyst (168 pin)	8	136	1mg	99	179				269			469	949	1920
Apple Power Macintosh 7500/100 TNT (168 pin)	8	136	1mg	99	179				269			469	949	1920
Apple Power Macintosh 8100/80 (pairs)	8	264	512k	59			109		219			419	899	
Apple Power Macintosh 6100/66 & 6100/66AV (pairs)	8/16	72					109		219			419	899	
Apple Power Macintosh 7100/66AV (pairs)	16	136					109		219			419	899	
Apple Power Macintosh 7100/80, 7100/80AV (pairs)	8/16	136					109		219			419	899	
Apple Power Macintosh 8100/100, 8100/100AV (pairs)	8/16	264					109		219			419	899	
Apple Power Macintosh 8100/110 (pairs)	8/16	264	512k	59			109		219			419	899	
Apple Power Macintosh 8500/120 (Nitro)	8/16	264			179				224			469	949	1920
Apple Power Macintosh 9500/120, 9500/132 (Tsunami)	8/16	264			179				224			469	949	1920
Apple Power Macintosh 9500	8/16	264	1mg	99	179				224			469	949	1920
Apple LaserWriter LS	512k	1				512k=72								
Apple LaserWriter NTR	3	4				79								
Apple LaserWriter NT	2	8							278					
Apple LaserWriter II NTX	2	12					140		330					
Apple LaserWriter II NTX-J	4	12					140		330					
Apple LaserWriter IIf	2	32										516		
Apple LaserWriter IIg	5/8	32				136						516	1236	
Apple LaserWriter Select 300	512k	4.5				1mg=34	109							
Apple LaserWriter Select 310	1.5	5.5				1mg=44	109							
Apple LaserWriter Select 360	7	16										419		
Apple LaserWriter Pro 600	4	32					109					419	899	
Apple LaserWriter Pro 630	4/8	32					109					419	899	
Apple LaserWriter Pro 810	8	32					109					419		
Apple LaserWriter 16/600PS	8	32					109		269			529	899	

SIMM MODULES

72 PIN MODULES		30 PIN MODULES	
1x32-70 (4M8)	$109	1x8-80 (1M8)	$35
1X32-60 (4M8)	$114	1x8-70 (1M8)	$35
2X32-70 (8M8)	$219	2x8-70 (2M8)	$65
2X32-60 (8M8)	$229	4x8-70 (4M8)	$129
4X32-70 (16M8)	$419	8x8-70 (8M8)	$279
4X32-60 (16M8)	$429	16x8-70 (16M8)	$495
8X32-70 (32M8)	$899		
8X32-60 (32M8)	$909		

DIMMS, 168 Pin

1x64	8Meg	$ 224
2x64	16Meg	469
4x64	32Meg	949
8x64	64Meg	1920
16x64	128Meg	Call

CUSTOMER SERVICE & TECHNICAL: OPEN M–F, 9–4 PST

All products brand new & guaranteed • We buy excess inventory

Trademarks are registered with their respective companies.

L.A. TRADE

22825 Lockness Avenue • Torrance, CA 90501

CALL FOR NEW MODELS NOT LISTED

NO SURCHARGE FOR MASTERCARD, AMEX, VISA OR DISCOVER. PURCHASE ORDERS ACCEPTED FROM FORTUNE 2000, GOVERNMENT & INSTITUTIONS. California orders add 8.25%sales tax. Returned orders or ordered wrong parts are subject to a 20% restocking fee. We accept International orders shipped via UPS Air, APO, FPO orders welcome. Customers are expected to pay customs and "other" charges if shipped Int'l. All credit card charges verified for fraudulent use. SORRY, NO REFUNDS AFTER 30 DAYS – EXCHANGES ONLY If you receive defective merchandise we exchange only—no refunds. We accept MC, VISA, Discover, AE, prepaid orders, purchase orders, wire transfer, COD (cashiers check) orders, cash & cashiers checks. Orders shipped by UPS, FEDX must be signed for.

• ALL MANFACTURER PART #'S ARE FOR REFERENCE ONLY
• MINIMUM ORDER $40.00 • NO REFUNDS ON SHIPPING.

310-539-0019
FAX: 310-539-5844

SECURITY WILL CALL WINDOW NOW OPEN

CALL TOLL FREE **1-800-433-3726** (US and Canada)

ESTAB. 1985

Prices & Availability Subject to Change Without Notice

Mon-Fri, 8:00 a.m. to 5:00 p.m. PST
Sat. 10:00 a.m. to 12:00 noon

PRICES MAY FLUCTUATE. CALL FOR LATEST PRICING!!

Small colleges can help you make it big.

Just ask: Michael D. Eisner—Chairman/CEO, The Walt Disney Company, Denison University, Ohio; William C. Springer—President, Heinz North America, Gannon University, Pennsylvania; Donna Wolf Steigerwaldt—Chairman of the Board/CEO, Jockey International, Inc., Colorado College, Colorado; James W. Near—Chairman/CEO, Wendy's International, Hanover College, Indiana; John W. Johnstone, Jr.—Chairman, President & CEO, Olin Corporation, Hartwick College, New York; William V. Roberti—President/CEO, Brooks Brothers, Sacred Heart University, Connecticut.

Some of our country's most successful people went to small colleges where size, faculty, and curriculum combined to give them the education, skills, and confidence to make it big in today's world.

A small college can help you make it big, too. To learn more about small independent colleges, contact: Council of Independent Colleges, One Dupont Circle, Suite 320G, Washington, D.C. 20036.

Sponsored by CIC The Council of Independent Colleges

MacAcademy®

Windows™ Academy

Computer Training Videos

only $49 each

	# volumes
ACT!	3
Access	6
Canvas	5
ClarisWorks	7
CorelDRAW	6
Desktop to Pre-Press	2
Design & layout	1
Digital Chisel	1
Director	5
Excel	5
FileMaker Pro.	4
FreeHand	6
4th Dimension	6
HyperCard	4
Illustrator	5
Infini-D	2
Integrating Programs	1
Lotus 1-2-3	4
Mac P & L	3
MacProject Pro	1
Mac Troubleshooting	3
MacWrite Pro	3
Mastering Macintosh	4
Mastering the Internet	1
Microsoft Project	4
Microsoft Works	5
MiniCad	2
Multimedia	1
Nisus Writer	4
Networks	1
Norton Utilities	1
Now Contact	1
Now Up-to-Date	1
Now Utilities	1
Online Services	1
PageMaker	7
Painter	4
Persuasion	2
Peachtree Accounting	4
Photoshop	10
PowerPoint	2
Premiere	3
QuarkXPress	4
Quicken (Personal)	2
Quicken (Business)	2
QuickTime	1
SuperPaint	3
Using America Online	1
Using CompuServe	1
Using Fonts	1
Using PowerBooks	2
Utilities, CDEV's, Inits	1
Windows Basics	4
Word	6
WordPerfect	6

All videos carry a 30 day money back guarantee. All videos may be upgraded when a new version is released for $19.95 per video. Videos may be ordered individually or as a group. Video training is also available in Spanish, Japanese, German, and French for selected titles. Windows versions for most programs are also available. Please add $4 per order plus $1 per video shipping and handling. It's time to get serious.

Call 800-527-1914

904-677-1918 Fax 904-677-6717

Dept MW-0496 100 E Granada Blvd Ormond Beach FL 32176-1712
http://www.macacademy.com

Circle 107 on reader service card

Call Mac Preferred Today

for the best in price, selection and service!!

PowerPC 9500/132 Complete System

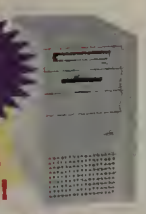
ONLY $159! per month!

- 32MB RAM
- 2.0GB hard drive
- CD ROM
- XKeyboard/Mouse
- 2MB VRAM
- 20" color monitor

Call for custom configurations!

Radius 81/110

ONLY $34! per month!

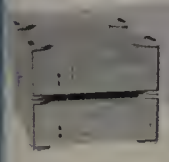


- 100% Mac compatible
- 110MHz!

Only $1484 with rebate!

Combo Sale! Stackable Modular Drives

ONLY $599!



1GB Quantum & SyQuest 270

All Ext. drives include SCSI cable, terminator and software

SyQuest EZ135

ONLY $229!

The new standard!

Olympus 1.3GB Optical Drive

ONLY $1489!

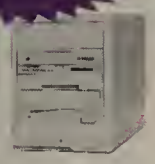
1.3GB starting at $1249!

Space Saver!

ONLY $1599!

Get all your drives together in one case!

Includes SyQuest 200, Quantum 540MB and Sony 650 optical drive!



Pioneer 4X CD Changer

- 6 CD's at once
- QUAD speed!

ONLY $395!

Apple Multiple Scan 15

ONLY $399!

- 15" Hi-Res screen
- 1024 x 768 dpi
- Exceptional color

Complete Systems

	Buy!	Lease!
9500/132 /32/2.0GB/CD w/20" monitor, XKeybrd, Mse	$7099	$159
9500/120 /16/1.0GB/CD w/17" monitor, XKeybrd, Mse	$4799	$108
8500/120 16/1.0GB/CD w/20" monitor, XKeybrd, Mse	$5799	$130
7500/100 16/500/CD w/20" monitor, XKeybrd, Mse	$3599	$81
Radius 81/110 /16/2.0GB/CD w/20" monitor, XKeybrd, Mse	$4299	$97

Macintosh CPU's

	Buy!	Lease!
9500/132 /16/2GB/CD	$3695	$83
9500/120 /16/1GB/CD	**$3165**	**$71**
8500/120 /16/1GB/CD	$3695	$83
7500/100 /16/1GB/CD	$2684	$60
7200/90 8/500/CD	$1494	$34
7200/75 8/500/CD	**$1365**	**$31**
Radius 81/110 8/730/CD	**$1484**	**$34**

Ext. Hard Drives

	External	Turbo!
Quantum 730MB Lightning	$245	$270
Quantum 1.0GB Fireball	**$325**	**$350**
Quantum 2.2GB Capella	$725	$750
Quantum 4.3GB Grand Prix	$1055	$1080
Quantum 4.3GB Atlas	$1285	$1310
Seagate 2.4GB Hawk 2	$735	$785
Seagate 2.5GB Barracuda 2	$945	$995
Seagate 4.3GB Hawk 4	**$1055**	**$1105**
Seagate 4.3GB Barracuda 4	$1475	$1525
Seagate 9.1GB Elite-9	$2395	$2445

Ext. Removable Drives

	External	Turbo!
SyQuest 88	$174	$199
SyQuest 105	$145	$170
SyQuest 200	**$365**	**$390**
SyQuest 270	$370	$395
SyQuest EZ 135	**$229**	**$254**

Ext. Optical Drives

	External	Turbo!
Fujitsu Dynamo 230	$495	$520
Olympus 230	**$455**	**$480**
Olympus DELTIS 1.3GB	**$1489**	**$1539**
Sony 650	$799	$824
Sony 1.3GB (Half-Height)	**$1249**	**$1299**
Pinnacle Micro Apex 4.6GB	$1495	$1545

Ext. Tape Drives

	External	Turbo!
Sony SDT-5000	**$995**	**$1095**
Exabyte 8205 XL	$1469	$1569

Ext. CD ROM Drives

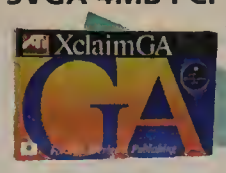
Pioneer 6 Disc 4x CD Changer	**$395**
PinnacleMicro CDR-1000 Dual Speed	**$1419**
Yamaha 4-Speed CD-ROM Recorder	$2789

Monitors

Apple Multiple Scan 15	**1024x768**	**$399**
Sony 15SF	**1024x768**	**$515**
Sony 17SF	1024x768	$915
Sony 20SE	1280x1024	$1849
NEC 15XV	1024x768	$439
NEC 17XV	1024x768	$729
Princeton Ultra 17	**1024x768**	**$629**
Radius PrecisionView 17	1024x768	$889
Radius PressView 21SR	1600x1200	$3099
Radius IntelliColor 20E	1600x1200	$1989
ViewSonic 20G	**1600x1200**	**$1479**

ATI XClaim GA SVGA 4MB PCI

ONLY $449!



- 24-bit color acceleration
- 1600x1200

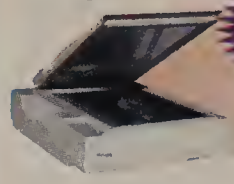
16MB SIMMS

ONLY $469!

Lowest Prices! Call for daily price update.

Relisys 9624T

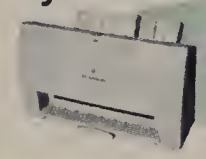
ONLY $949!



- 600 dpi
- includes Transparency

Apple Color StyleWriter 2400

ONLY $369!

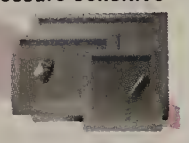


- 720 x 360 dpi

Wacom ArtZ 6x8

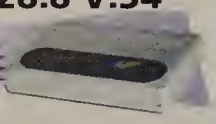
- Cordless stylus
- Pressure sensitive

ONLY $289!



SmartLink 28.8 V.34

ONLY $135!



SyQuest 200

ONLY $70!

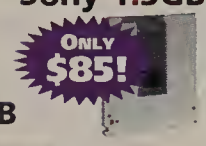
44MB starting at $35!

Sony 1.3GB

ONLY $17!

OEM 128MB

ONLY $85!



Sony DAT 90m

ONLY $12!

ONLY $199! with any purchase

ONLY $99!

Photoshop — Retrospect

Free utility or game disk with every purchase—no minimum required!

Video Cards

Radius Thunder 24 (1152x870)	**$549**
Radius Thunder II Series IV GX 1152	$1579
Radius Thunder II Series IV GX 1600	$1979
Radius Thunder II 30/1152 (PCI)	**$789**
Radius ThunderColor 30/1152 (PCI)	$1559
Radius ThunderColor 30/1600 (PCI)	**$1989**
Radius SpigotPower AV	$589
XClaim GA SVGA 2MB PCI	$345
XClaim GA SVGA 4MB PCI	**$449**

Memory

4MB SIMMS	$142
8MB SIMMS/DIMMS	$285/$289
16MB SIMMS/DIMMS	**$469/$569**
32MB SIMMS/DIMMS	$945/$949

Scanners

Dextra Desktop Color 2400	**600 dpi**	**$299**
Epson ES-1200c Pro	1200 dpi	$1169
Microtek ScanMaker II	300 dpi	$369
Nikon CoolScan LS-10 35mm	2700 dpi	$1269
Relisys 2412	**300 dpi**	**$379**
Relisys 4830T w/Transparency	400 dpi	$999
Relisys 9624T w/Transparency	**600 dpi**	**$949**
Umax PowerLook Pro w/ trans	1200 dpi	$1885
Visioneer PaperPort	**400 dpi**	**$349**

Printers

Apple Color StyleWriter 2200	720 dpi	$359
Apple Color StyleWriter 2400	**720 dpi**	**$375**
Apple LaserWriter 4/600	600 dpi	$765
HP LaserJet 5MP Laser	600dpi	$1039
HP DeskWriter 660C Inkjet	**600dpi**	**$394**
Primera Pro Color	**300dpi**	**$1499**
Primera Pictura 310 Color	300dpi	$3899
TI MicroLaser PowerPro	**600dpi**	**$1559**

Graphics Tablets

Wacom ArtZ	**6" x 8"**	**$289**
Wacom ArtZ	12" x 12"	$419
Wacom ArtZ	12" x 18"	$689

Modems

GlobalVillage TelePort Gold 14.4	**$99**
GlobalVillage TelePort Platinum 28.8	$195
SmartLink 28.8 V.34	**$135**
SupraFAXModem 28.8 MC V.34	$215

Keyboards/Pointers

Addesso TrueForm Keyboard	$88
Mac Extended Keyboard	**$49**
Connectix QuickCam	$95

Media

270MB SyQuest cartridges	$56
200MB SyQuest cartridges	**$70**
EZ 135MB SyQuest cartridges	$18
105MB SyQuest cartridges	$33
44/88MB SyQuest cartridges	**$39/44**
OEM 650/1.3GB optical cartridges	$53/54
OEM 128MB optical cartridges	**$17**
Sony 128/230MB optical cartridges	$29/39
Sony 600/650MB optical cartridges	$69
Sony 1.2/1.3GB optical cartridges	**$85**
Sony 90m DAT tapes	$12
Sony 120m DAT tapes	**$24**

Software

Adobe Photoshop 3.0.1 w/CD	**$199**
Adobe Illustrator 5.5 w/CD	$299
Microsoft Dffice 3.0	**$299**
FWB Hard Disk Toolkit	$25
FWB CD-Disk Toolkit	$25
Dantz Retrospect II 3.0	**$99**
Caere OmniPage Direct 2.0	$39
MetaTools Kai's Power Tools 2.1	$35
MicroFrontier ColorIt! 2.3	$25
DDS Mounter '95	**$79**

FAX 310-224-1962

E-mail: macprefer@aol.com

International Orders 310-224-1955

Prices, terms and availability subject to change without notice. Call for latest prices and specials. Promotions limited to stock on hand. Not responsible for typographical errors. Return items may be subject to restocking fee.

Mac Preferred

Dedicated to Macintosh— Just like you!

1978 Del Amo #D • Torrance, CA 90501

800-804-6151

WEEKDAYS 6AM TO 9PM, SATURDAYS 9AM TO 6PM, SUNDAYS 10AM TO 5PM.

Circle 76 on reader service card

Call 800-905-3034 Fax 818-708-6399

Call 800-905-3034 Or Fax us at 818-708-6399-24 Hrs.

Call Today for Your Free **CATALOG**

MacMarket

1-800-905-3034

Fax: 818-708-6399

LOW RATES
BUSINESS LEASING AVAILABLE

Trans Leasing

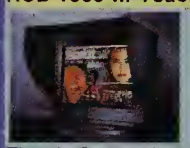
CorporateAccounts:
Get a Line of Credit
up to $50,000.00

NUMBER NINE Graphics Acceleration NEW
Image 128 ..... $1,329 V9248
1600x1200 Res., 8MB, PCI

PINNACLE MICRO
THE OPTICAL STORAGE COMPANY

Optical Apex
4.6GB As low as $1599 #E7236

Free 230MB Cartridge W/
Tahoe 230 ..... $519 #E7251
RCD 5040 ..... $1189 #E7248
RCD 1000 w/ Toast Sftwr ..... $1449 #E7246



radius
Your HighEnd Solution
Radius PCI Cards
ThunderColor 30/1600 PCI ..... $1899 #V9102
ThunderColor 30/1152 PCI ..... $1499 #V9105
Thunder 30/1600 PCI ..... $1159 #V9108
Radius Monitors
Precision View 17 ..... $949 #M6606
Press View 17SR ..... $1909 #M6600
Press View 21SR ..... $3049 #M6609
PrecisionView 21 ..... $2159 #M6614
MultiView 21 ..... $1739 #M6611

EA RESEARCH **Accelerated PCI Video Card** $569
EAsycolor 1600/16 PCI Card #V45699
21" Monitor&Calibrator ..... $2369 #M6646
MPEG ..... $79 #V4533

New Low MacMarket Prices on Apple Monitors & Printers

Apple Multple Scan 15" ..... $399 #M6558
Apple Multple Scan 20" ..... $1859 #M6564
Apple Vision 1710AV ..... $1059 #M6567
Apple MultipleScan 14" ..... $339 #M6570
Apple MultipleScan 1705 ..... $759 #M6638

LaserWriter 16/600PS ..... $2150 #P3250
Color LaserWriter 12/600PS ..... $6500 #P3405
LaserWriter 4/600PS ..... $749 #P3256
Color StyleWriter 2400 ..... $369 #P3259
Color StyleWriter 2200 ..... $399 #P3282
StyleWriter 1200 ..... $199 #P3265

International Call: 818•708•6388
Customer Service and Technical support Call: 818•708•6388
Address: 6924 CANBY AVE UNIT#104
RESEDA CA. 91335
Mon-Fri, 8AM to 6PM (Pacific)

All Prices reflect a **Cash** Discount. Any other method is 2% to 4% higher. Prices are subject to change without notice. All Returns are subject to restocking fee, must be in original package, condition & needs an RMA#. No Refunds on Labor or Freight Charges.
We accept Visa, Mastercard, Discover & American Express. P.O.s are accepted from U.S. Gov't, Schools & Corporations.
Not responsible for typographical errors.

PowerBook 5300 Blowout Prices

5300cs100MHz8/500 ..... $2249 #A1130
5300cs100MHz16/750 ..... $2799 #A1133
5300c100MHz 8/500 ..... $3169 #A1121
5300c100MHz16/750 ..... $3599 #A1118
5300ce117MHz32/1GB ..... $5399 #A1115
Duo 2300c 100MHz8/750 ..... $3329 #A1106
Duo 2300c/100MHz/20/1GB/Modem ..... $4279 #A1107
190 33MHz 4/500 ..... $1589 #A1112
190cs 33MHz 8/500 ..... $1939 #A1109

MacMarket Slashed Prices on PowerMac

PowerMac 7200
90MHz • 601 RISC • PCI

16MB•500MB•CD600i $1743 #A1187
24MB•1GB•CD600i ..... $2249 #A1334

7200 /75MHz Complete System
16MB • 500MB • CD • 14" Monitor • Keyboard $1999 #A1604
16MB • 1GB • CD • 15" Monitor • Keyboard $2299 #A1397

#A1604

PowerMac 7500
100MHz • 601 RISC • PCI

16MB•1GB•CD600i $2677 #A1329
48MB•2GB•CD600i $3999 #A1411

7500 Complete System
24MB RAM • 1GB Hard Drive • CD600i • 15"Monitor • Extended Keyboard
$3399 #A1611

PowerMac 8500
120MHz • 604 RISC • PCI

16MB•1GB•CD 600i $3695 #A1314
48MB•2GB•CD 600i $4655 #A1322
80MB•4GB•CD 600i $5959 #A1332

8500 Complete System
48MB RAM • 2GB Hard Drive • CD600i • 17" Monitor • Extended Keyboard
$5699 #A1328

PowerMac 9500
132MHz • 604 RISC • PCI

80MB • 2GB • CD 600i ..... $5619 ..... #A1228
144MB •4GB • CD 600i ..... $7898 ..... #A1225

9500 / 132 MHz
80MB • FWB SledgeHammer 8GB-Wide Array • CD 600i Radius • PressView21SR • IMS TwinTurbo 128M • Extended Keyboard
$12,995 #A1233

Performas 6200 & 5215
6200CD•75MHz•PowerPC ..... $1798 #A1190
5215CD•75MHz•PowerPC ..... $1799 #A1191

Performa 6300CD•100MHz•PowerPC•
603 w/FPU 16MB RAM • 1GB HD • 4X Apple CD • Apple 15" Monitor • Apple Extended Keyboard & Mouse • 1.4MB SuperDrive •28.8 Fax/Modem w/ Speaker Phone & Answering Machine $2555 #A1193

Polaroid Slide Scanner
SprintScan 35 Slide Scanner
$1469 #S8545

Kodak digital science NEW
DC40 DigitalCamera ... $659 #S8804
DC50 DigitalCamera CALL #S8806

DAYSTAR DIGITAL
Ultimate Upgrade
100MHz Turbo 601 ... $1139 #A4509
IICi, IISi, IIVx, IIVi and perfoma 600
100MHz PowerCard 601 $919 #A4498
Perfoma, Quadra, LC475, LC575, 605, 630
100MHz PowerPro 601 $1159 #A4500
Q610, 650, 700, 800, 950, C610, 650
(610needs an adapter)

Nikon ELECTRONIC IMAGING New
LS-20 Coolscan II ..... Call #S8500
SuperCoolScan External ..... $1949 #S8503

Sale! EPSON Sale!
Stylus Color ProXL ..... $1669 #P3291
Stylus Color II InkJet ..... $376 #P3294
ES-1200C Pro Scanner $1125 #P8533

The Best Value For Your Money ATTO
ExpressPCI-MC ..... $706 #A4519
ExpressPCI–SC PCI . $273 #A4518
SiliconExpressIV(NuBus) ... $785 #A4515

UMAX *The Magic of Color*

PowerLook Pro + ... $1829 #S8519
PowerLookIIProM ..... Call #S8522
PowerLook II Pro2 ..... Call #S8520
Vista S6 LE ..... $569 #S8506
Vista S8 LE ..... $659 #S8511
Vista S12 LE ..... $729 #S8564

HEWLETT PACKARD
660c 600X300 ..... $399 #P3223
5MP 600dpi ..... $999 #P3232
4MV 600dpi ..... $2649 #P3235
DeskJet 1600CM .. $1921 #P3410

AGFA
The complete picture.
Studio Scan IISi ..... $809 #S8477
Arcus II ..... $1789 #S8482
DuoScan ..... $4458 #S8480

Portrait
$929
Portrait Display Pivot 1700 #M6597

MICROTEK Better Images Through Innovation.
ScanMaker Series
III w/PhotoShop ..... $1929 #S8444
IIHR w/PhotoShop ..... $719 #S8447
IIHR w/ColorIt, OmniPageDirect $547 #S8450
ScanMaker E3 ..... $380 #S8460

Megahertz
CruiseCard 28.8 .... $279 .... #F8154
CruiseCard 14.4 .... $133 .... #F8156

SONY
MultiScan 15SF2 $489 #M6438

Sony 17SF2 ..... $865 #M6580
Sony 20SF2 ..... $1779 #M6574

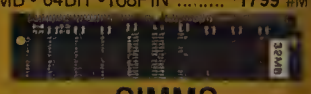
QMS Printers
MagiColorCX\20MB .... $6249 #P3417
HammerHead 1660 .... $3588 #P3418

NEC

XV17 ... $773 #M6588
XE17 . $1007 #M6591
XP17 . $1044 #M6582
XE21 . $1687 #M6594
XP21 . $1956 #M6585

MACMARKET IS MORE THAN JUST ANOTHER MACINTOSH DEALER, TAKE A LOOK AT OUR GREAT HARDWARE SELECTION & OUR LOW LOW PRICES.
Compare & Save

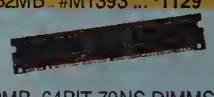
Hot Prices on DIMMS
8MB • 64BIT • 168PIN ..... $229 #M1
16MB •64BIT •168PIN ..... $449 #M1
32MB • 64BIT •168PIN ..... $899 #M1
64MB • 64BIT •168PIN ..... $1799 #M1



SIMMS
4MB • 32BIT • 72PIN 60NS .... $154 #M1
8MB • 32BIT • 72PIN 60NS .... $229 #M1
16MB • 32BIT • 72PIN 60NS .. $444 #M1
32MB • 32BIT • 72PIN 60NS .. $899 #M1

PCI PowerBook Memory

	5300		190	
4MB	#M1386	$150	#M1702	$1
8MB	#M1387	$286	#M1704	$2
12MB	#M1388	$455	#M1706	$4
16MB	#M1390	$569	#M1708	$5
32MB	#M1393	$1129		



Newer TECHNOLOGY
8MB, 64BIT 70NS DIMMS ..... $255 #M14
16MB, 64BIT 70NS DIMMS ... $477 #M14
32MB, 64BIT 70NS DIMMS ... $989 #M14
64MB, 64BIT 70NS DIMMS . $1945 #M14

PowerBook 500 603e/117MHz Upgrade
500 PPC (CPU Only) ..... $549 #A45
500 PPC w/4MB RAM ..... $719 #A45
500 PPC w/8MB RAM ..... $889 #A45

INTERGRATED MICRO SOLUTIONS
Twin Turbo 128M (4MB) _ $569 #V92

TRUEVISION
Targa 2000(PCI) #V9200 $42

All drives are tested and come with the latest FWB HDT tool kit.. All drives come with **full factory warranty.**
We carry both Internal and External
External Drives come with SCSI Cable Terminator.**External are $69.00 More**

Quantum
1080MB FireBall(12ms) ___ $285 .. #H1
2.2GB Capella(8.5ms) ___ $679 .. #H1
4.3GB GrandPrix(8.6ms) __ $959 .. #H1

Seagate
BARACUDA SERIES—7200 RPM
INTERNAL
2.5GB _____ $799 ..... #H12
2.5GB-Wide ___ $859 ..... #H12
4.2GB _____ $1222 ..... #H12
4.2GB-Wide ___ $1274 ..... #H12
Elite 9 SERIES
9GB _____ $2095 ..... #H12

WACOM
ARTZ II 6 X 8 Tablet ..... $309 #T95
ARTZ II 12 x12 Tablet ..... $399 #T95

RASTEROPS SuperScan Monito
SuperScan 20" ..... $1349 #M6
SuperScan 21" ..... $1869 #M6

GLOBAL VILLAGE COMMUNICATION
PowerPort PC Cards
Gold 14.4 ..... $169 #F8
Platinum 28.8 ..... $319 #F8
PlatinumPro28.810Base-T ..... $479 #F8

PowerPort Mercury for PB 500s $319 #M8
TelePort Platinum ..... $199 #M8
TelePort Gold II ..... $109 #M8

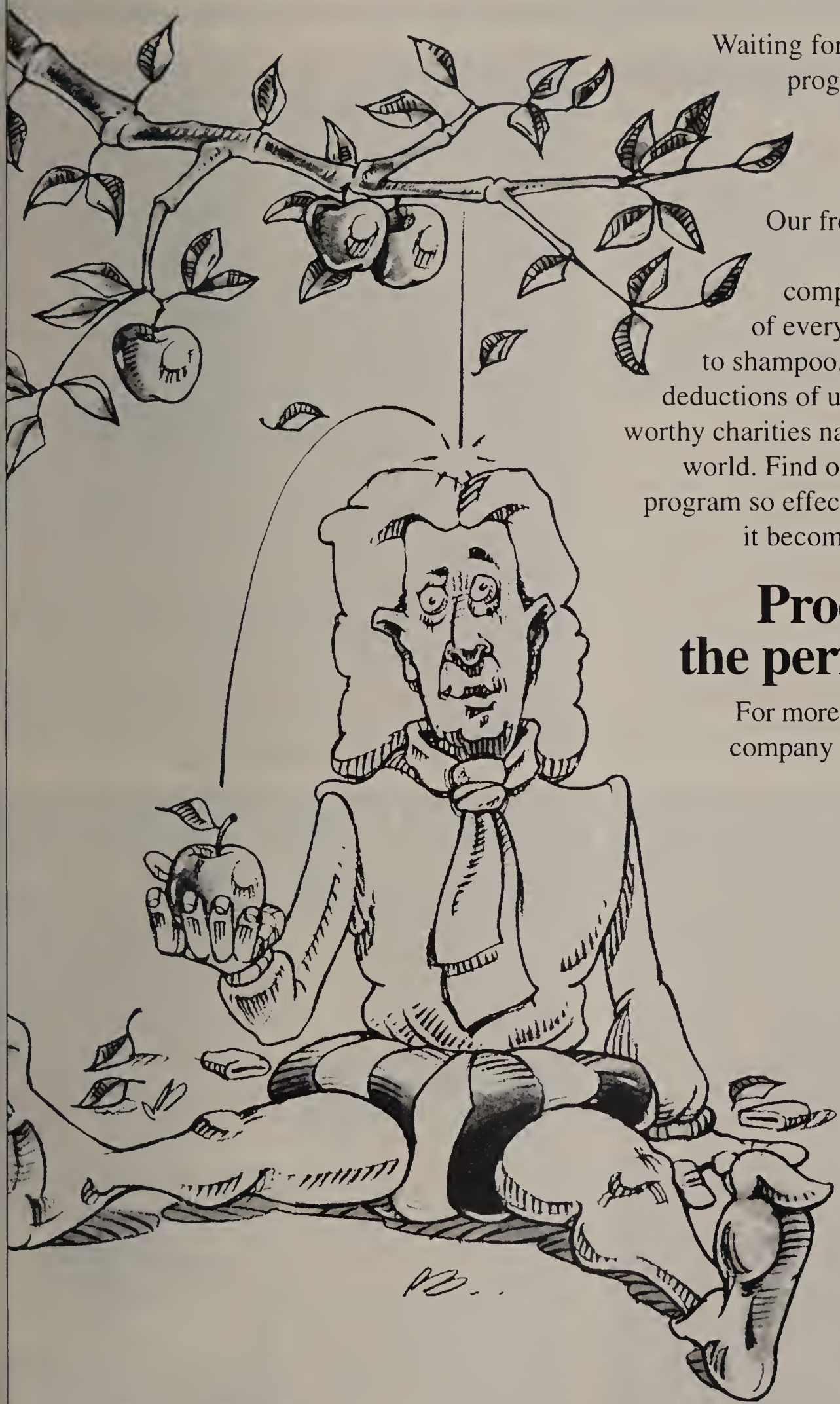
SupraFAXModem
SupraExpress 14.4 Plus ..... $99 #F8
Fax/Modem 28.8 v.34 ..... $217 #F8
SupraExpress 28.8 Plus ..... $154 #F8

FWB incorporated
JackHammer PCI Accelerator #A4417 $35
SledgeHammer8200FMF PCI-W $3874 #H

Call 800-905-3034 Local 818-708-6388

Circle 258 on reader service card

A Brilliant Deduction℠



Waiting for a great corporate giving program to fall from the sky? How does this hit you: Product giving through Gifts In Kind America.® Our free donation management services make it easy for companies to turn inventories of everything from photocopiers to shampoo, jeans to laptops into tax deductions of up to twice cost...helping worthy charities nationwide and around the world. Find out how we can develop a program so effective for your company... it becomes the apple of your eye.

Product giving – the perfect solution!

For more information on how your company can get involved, contact:

GIFTS IN KIND®
AMERICA

700 N. Fairfax Street
Suite 300
Alexandria, VA
22314

703-836-2121

Sir Isaac Newton, Mathematician and Physicist, 1642-1727

©1994 Gifts In Kind America

Gifts In Kind America...for more than a decade, helping hundreds of leading companies contribute half a billion dollars in products to tens of thousands of charities.

PRODUCT INDEX
BUSINESS TOOLS

PRODUCT INDEX

Category	Page No.
BUSINESS TOOLS	**214-216**
Bar Code	
Electronic Paper	
Online Services	
Point of Sale	
Presentation	
Real Estate	
EDUCATIONAL & RECREATIONAL	**242-246**
Astrology	
Discount Software	
Games	
Genealogy	
Music	
Religion	
Schools	
GRAPHICS	**246**
Clip Art	
CD-ROM Photos	
MOBILE COMPUTING & PDAs	**247**
NETWORKING & COMMUNICATIONS	**247**
BBS	
PROGRAMMING & UTILITIES	**248**
Languages	
SERVICES & SUPPLIES	**247-248**
Computer Insurance	
Computer Repair	
Data Recovery	
Furniture	
Slides	
SYSTEMS & PERIPHERALS	**217-237**
Switch Box	
UPGRADES & MEMORY	**237-242**
Memory Upgrades	

ACCOUNT MANAGERS: 800.888.8622

Carol Johnstone 415.978.3152
carol_johnstone@macworld.com

Shannon Smith 415.974.7414
shannon_smith@macworld.com

Niki Stranz 415.978.3105
niki_stranz@macworld.com

DTP COORDINATOR:

Clayton Haberman . . .415.978.3132
clayton_haberman@macworld.com

CIRCLE 490 ON READER SERVICE CARD

Fast Systems 800-508-4444
Mail Order Tel. (508) 653-6911 Fax (508) 650-1872
Distribution EES Companies, Inc.
Point-of-Sale
- *Order Entry*
- *Invoicing*
- *Fast Cash Retail*
- *Purchase Order*
- *Credit Card Processing*
- *Inventory Control*
- *Barcoding*
- *Multi-User*
- *Complete Systems Available*

Demo Available
CIRCLE 492 ON READER SERVICE CARD

BAR CODE PRO™
Create EPS graphics for your desktop publishing documents. Call for a free demo disk and get the information you need to make an intelligent purchasing decision for Mac or Windows.
800.619.0399
718.499.6293
or fax
718.768.3997
0 012345 7
SYNEX
CIRCLE 450 ON READER SERVICE CARD

CREDIT CARD
Authorization & Electronic Deposit Software
- Automatically authorizes and deposits all credit card sales -- individually or in batches
- Integrate with your sales system with AppleEvents, AppleScript & import/export

INTERNET COMMERCE READY
MacAuthorize 800/483-5526
info@tellan.com http://www.tellan.com
Tellan Software, Inc
CIRCLE 480 ON READER SERVICE CARD

Barcode Generation
MacBARCODA High Quality EPS bar codes. The highest precision barcode software available for the Mac.
Label Printing
Label Designer
Label printing with bar codes, text, graphics, sequential numbers and mail merge on PostScript printers with **Label Designer** or reel-fed thermal printers with **MacThermal** - supports Zebra, TEC, Datamax, RJS.
macthermal
Bar Code Readers for Mac or PC **$ 255**
Computalabel
Call Toll Free - 800-289-0993
28 Green Street, Newbury MA 01951
Fax 508-462-9198
CIRCLE 544 ON READER SERVICE CARD

Bar Code Solutions
Videx data collection equipment is designed for work on the go. Cast-metal cases protect the products and allow them to work reliably in harsh environments.
Videx Products...Built Tough...Built to Last!
Videx
1105 N.E. Circle Blvd., Corvallis, OR 97330
541-758-0521 • Fax 541-752-5285 • http://www.videx.com
CIRCLE 545 ON READER SERVICE CARD

MacLandlord $399
- Property management & bookkeeping program
- Easiest-to-use
- Tracks tenants, vacancies
- Prints checks, receipts, notices
- Income & expense statements
- Handles multiple properties
- Free telephone support
- 30 Day money-back guarantee
- $199.0 for competitive upgrade

Labana Management Company
P.O. Box 2037
Dearborn, MI 48123
313/562-6247

Bar Coding

Call us for Info
- Portable & Non-Portable Readers
- Radio Frequency Readers
- PostScript Bar Code Fonts

800-345-4220
WORTHINGTON DATA SOLUTIONS

MACINTOSH TO WINDOWS PEER TO PEER FILE AND PRINT SHARING $199.

NEW! Personal MACLAN Version 5.5 is the only cross platform networking software that provides peer-to-peer file and printer sharing between Macintosh and Windows or Windows 95. Macs can share files from any Windows PC through Chooser. PCs can mount local Macintosh drives as a logical drive letter.

"Simply the best AppleTalk for Windows product you can buy".
MACUser - November 1995

- Peer to peer sharing of any hard-drive, C-D ROM, or floppy drive
- Print from Windows to any AppleTalk printer
- Print from the macintosh to any Windows post script printer
- No special software required for the Mac user
- Backup you PC from your Mac
- New 32 bit Apple talk VxD provides better performance
- Compatible with Windows for Work groups, NetWare and other LANs

Order now
Miramar Systems
800-862-2526
Call for competitive upgrades
email: sales@miramarsys.com www.miramarsys.com

MacUser RATE ★★★★½ November 1995

CIRCLE 431 ON READER SERVICE CARD

IF WE DON'T SELL IT, IT'S NOT WORTH LOOKING AT.

PANELIGHT IS YOUR ONE STOP SHOP FOR ALL LEADING BRANDS
• SALES, RENTALS, & LEASES
• MONEY-BACK GUARANTEE • OVERNIGHT SHIPPING.

PANELIGHT OFFERS THE BEST IN SELF-CONTAINED LCD PROJECTORS, LCD PROJECTION PANELS, SUPER-BRIGHT OVERHEADS, MULTIMEDIA MONITORS, AND ACCESSORIES FROM THE WORLD'S LEADING MANUFACTURERS; HITACHI, IN FOCUS, PROXIMA, NEC, NVIEW, POLAROID AND OTHERS.

Panelight DISPLAY SYSTEMS, INC.

CALL THE EXPERTS AT PANELIGHT DISPLAY SYSTEMS, INC.

CALL PANELIGHT FOR OUR FREE CATALOG:
1-800-726-3599.
MON.-FRI., 6:30AM-5:30PM P.S.T.
24-HR. FAX: 415-986-3817

PANELIGHT DISPLAY SYSTEMS, INC., P.O. BOX 190940, SAN FRANCISCO, CA 94119. OR CALL 415-772-5800.

CIRCLE 481 ON READER SERVICE CARD

Hang Ten with Mach Ten

Make Your Macintosh An Internet Server

Mach Ten... unlimited possibilities on Classics to PowerMacs.

1. Unlimited Web 'Home' Pages
2. Unlimited TCP Connections
3. Unlimited Mail Accounts
4. Unlimited Internet Addresses
5. Unlimited Domain Names
6. Domain Name Service (DNS)
7. POP Mail Service
8. Mac/UNIX File Sharing
9. Mac/UNIX Printer Sharing
10. Unlimited Possibilities

Mac™OS and UNIX on a single machine: *The Best Of Both Worlds.*

For more information, or to order call **1-800-6-MACH-10**
Internet: info@tenon.com http://www.tenon.com

TENON INTERSYSTEMS
Tenon Intersystems
1123 Chapala Street, Santa Barbara, CA 93101
Tel: 805-963-6983 • Fax: 805-962-8202

©1995 Tenon Intersystems. All trademarks are the property of their respective owners.

CIRCLE 468 ON READER SERVICE CARD

Integrate Macs with SGI/Sun/HP

CIRCLE 403 ON READER SERVICE CARD

TOTAL INTERNET ACCESS

$15 PER MONTH

UNLIMITED! UNCENSORED!

File Edit View Go Bookmarks Options Directory Help

IDT WEB BROWSER

Save up to 99% monthly with IDT!

Daily Internet Usage:	IDT Unlimited/Unltd.Plus	AOL	Prodigy	Compuserve
1.5 Hours	$15/$29	$127.95	$74.20	$73.70
3 Hours	$15/$29	$260.70	$206.95	$161.45
All Day	$15/$29	$2,119.20	$2,065.45	$1,389.95

Why pay through the nose to access the Internet with that big, bland on-line service? (Especially since they censor what you can see and do.)

- IDT believes you have the right to unregulated and uncensored information and entertainment.
- For $15 monthly we deliver unlimited and uncensored usage with free customer support.
- We also provide free Netscape™ the ultimate WEB browser with every Unlimited *Plus* account.
- Plus, it's almost always a local call.

To sign up/get information call anytime:

1-800-743-4343

IDT

✓NO PER MINUTE CHARGES
✓ALMOST ALWAYS A LOCAL CALL
✓UNLIMITED E-MAIL

CIRCLE 449 ON READER SERVICE CARD

LaserMerge® Electronic Paper 2.0®

Sign your faxes... turn Signature **into** Jane Doe (your signature here)

Electronic Paper does this and replaces these tools:

- *Watermarkers*
- *Bar Coders*
- *Paper Designers*
- *Toner Tuners*
- *Label Makers*
- *Print Loggers*

Electronic Paper templates optimize & speed up printing, create paper of any size, multi-ups to your design, build pamphlets or stacked prints, and colorize and gray images...

- Save images in the printer's disk/memory
- PS Level 2 forms
- Flash print forms
- Borders/Graphics
- Letterheads/Invoices
- Serial numbers
- Copy-dependent pages
- 38 text commands

LaserMerge is not a printer driver! It's a revolutionary printing system that will change the way every application prints...

System 7 required. Works with both PostScript and QuickDraw printers. LaserMerge's miracles require only 32K of system memory. QuickDraw GX is NOT required! LaserMerge ships ready to install in English, French, German and Spanish.

For 101 ways to use LaserMerge, call (800) 648-6840

30-day money-back guarantee

VISA

Competitive Upgrade: If you own ANY Print Utility, you can upgrade to Electronic Paper for $40. Call for details!

List Price: $95 **Networked Sites:** start at $22/unit

Worldwide: (615) 937-6800 **Fax Facts:** (615) 937-INFO
Internet: MGTSales@mindgate.com **Fax:** (615) 937-6801

MindGate, LaserMerge, Electronic Paper and their logos are registered trademarks of MindGate Technologies, Inc.

MindGate® Technologies, Inc
164 Oliver Smith Road
Flintville, TN 37335-5335

CIRCLE 517 ON READER SERVICE CARD

POINT-OF-SALE

Systems start as low as **$695**

Ensign SYSTEMS INC.

Mac OS

POS•IM gives you the necessary tools to secure your profits and build your business

The One That Apple® Uses

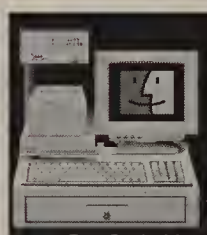
POS•IM

Point-of-Sale • Inventory Management

1•800•409•7678

Ph: (801) 546-1616 • Fax: (801) 546-6490

SOFTWARE and HARDWARE



POINT OF SALE
INVENTORY CONTROL

- Retail
- Rentals
- Service
- Manufacturing
- Multi Location

Bar Code/Magnetic Stripe Readers
Receipt Printers • Cash Drawers
Credit Card Auth.& Deposit Software
Complete POS Systems as low as $940 .00
Web Site: http://www.posdirect.com

call, fax, or e-mail for a FREE CATALOG

(800) 622-7670 posdirect@aol.com

(618) 985-8237 TEL • (618) 985-3014 FAX

Dealer Inquiries Welcome
30 day MBG

VISA MasterCard

P.O.S. DIRECT

CIRCLE 466 ON READER SERVICE CARD

Newton® Joins the Mac-Barcode® Family!

One Stop Shopping with Friendly Support from the Experts

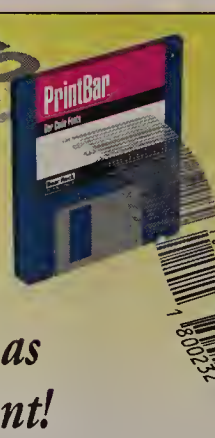
Mobile Simple Fast Accurate

Newton® Walk-About™
Mac-Barcode ProLabel Software
SmartLaser/SmartScanner/SmartPen
Thermal Transfer Printer
Call for Literature & Free Demo Disk

The Mac-Barcode Co.
800-733-7592
FAX 617-934-6233

CIRCLE 562 ON READER SERVICE CARD

Creating precision bar codes is as easy as using a font!



PRINTBAR™ BAR CODE FONTS

- Compatible with virtually any Macintosh application.
- Choose from: UPC/EAN/ISBN
  - Code 39 • Code 128 NEW!
  - Interleaved 2 of 5 • POSTNET/FIM.
- 90-day money back guarantee.

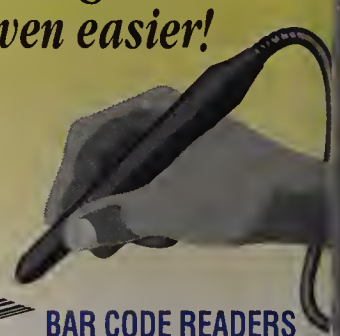
"This is the best product of its kind, and it's reasonably priced too."
—MacUser review ★★★★½

EXTRA BONUS
FREE POSTNET & FIM
with any PrintBar Font Purchase

Bear Rock TECHNOLOGIES
Bar Code Products That Mean Business

4140 Mother Lode Dr., Ste 100, Shingle Springs, CA 95682
PH: 916 672-0244 • FAX 916 672-1103
E-Mail us at: info@bearrock.com

Scanning bar codes is even easier!



BAR CODE READERS AS LOW AS $199!

- We offer readers compatible with Macintosh PC, PS/2, laptops, and serial terminals.
- Instant or remote data entry from bar codes! Scan information into any software application with a wand, CCD, laser gun, badge slot or magstripe reader.
- Don't waste your money on the wrong kind of bar code reader for your situation.
- Our experienced customer service reps can help you choose the correct reader for your needs at the best price!

Money Back Guarantee On All Products

800 232-7625

Visit our Web Site at: www.bearrock.com

Ad # 96 a

Power Mac

SALE

radius SUPERMAC

9500/132 16/2GB CD $3495
9500/120 16/1GB CD $2995
8500/120 16/2GB CD $3795 16/1GB CD $3295
8100/110 16-2GB CD CALL
7500/100 16/1GB CD $2295
7500/100 16-500 CD $2145
7200/90 16-500 CD $1595
7200/75 8-500 CD $1199
7200/75 16-1GB CD $1665
Workgroup Servers CALL
7100/80AV 16-700 CD CALL
6100/66 8-500 CD, DOS Card $1545

Performa 5215/75MHz 8/1GB CD $1595 Fax/Modem Monitor/KB. with CD Bundle

4/8/16/32MB MEMORY $129/249/439/885
1GB/2GB/4GB/9GB HD $235/589/879/1695

MultiView21 $1699
IntelliColor 20e 20" Trinitron $1295* $1725
PressView 21SR $3095
Precision Color Pro 24X $495
VideoVision $2395
Precision Clr. 21 $1395
Thunder IV GX 1152 $1295 1360 $1595 1600 $1895
LeMans GT $495
Spigot Power AV $645
Spigot II Tape $299
21TXL $1995 $1395*
STD2102R 21" Multisync Trinitron

SALE

PowerBook

520 4-240 $995 — 68LC040 /Sound I-O Ethernet Port 9.5" Screen PPC Upgradable to 117MHz
520C 12-320 Modem $2095
5300 8-500 $1495
5300cs 16-750 $2595
5300c 16-750 $3295
5300ce 32-1GB $4675
540C 12/320 Modem CALL
190 8-500 $1495
190cs 8-500 $1645
150 4-120 $645
150 4-240 $825
DUO 280C 12-420 Modem $2695
DUO 2300C 12-320 Modem $CALL

STAR $99 Color & Mono laser quality, 35 Fonts, 382cps, 360dpi

Megahertz Fax/Modem For 5300 & 190 14.4 $119 28.8 $249

4/8/16/32MB MEMORY _ $129/279/499/985
540/810MB/1.3GB HD F/New PB.'s $199/399/499

Best Buy Products 1995
Kodak DC40 Digital Camera $649
DeskJet 850C 6PPM, 600DPI $449
ViewSonic® 17GA 17" Multimidea Mntr. $795

Thunder 30 Series
30-1152/30-1600 $799/1199
Color 30-1152 $1595
Color 30-1600 $1995
Thunder 8/1600 $425

TRUEVISION First in Digital Video
Targa 2000 PCI $3295
Targa 1000 PCI $2650

Full-Screen, Full-Motion Video Capture & Playback at 30 Frames & 60 Fields.

COMPU.D International, Inc.
1-800-929-9333

Sales (818)787-3282
Export " 787-1054
* Factory Reconditioned with Warranty
MasterCard VISA
All Prices Are Based on C.O.D. Order & Subject To Change!

Internet Address: 74673.1503@COMPUSERVE.COM
FAX (818)787-5555/FAX Back 787-4548

CIRCLE 406 ON READER SERVICE CARD

POWERMAC

7200/75	8/500/CD	1199
7200/90	8/500/CD	1499
7200/90	16/500/CD	1629
7500/100	16/500/CD	2389
7500/100	16/1GIG/CD	2589
8500/120	16/1GIG/CD	3399
8500/120	16/2GIG/CD	3899
9500/120	16/1GIG/CD	3179
9500/132	16/1GIG/CD/VID	3499
9500/132	16/2GIG/CD/VID	3899
6100/66	8/500/CD	1389
6100/66	16/500/CD/DOS	1999
7100/80	8/500	1299
7100/80	8/700/CD	1399
7100/80AV	16/700/CD	1699*
8100/100	8/700	1995
8100/100	16/1GIG/CD	2799
8100/100AV	16/1GIG/CD	2899
8100/110	16/2GIG/CD	2995
WRKGRPSVR	8150/110	3995
QUADRA 950	8/0	1699

PERFORMAS

6300	16/1.2GIG/CD	2299
6230	16/1GIG/CD/MPG	2399
6220	8/1GIG/CD	1749
6200	8/1GIG/CD	1699
6116	8/700/CD	1499/1299*
6115	8/350/CD	1199*
5215	8/1GIG/CD	1699
640CD DOS	12/500/CD	1449
638CDV	8/250/CD/TV	1299
635	5/250/CD	849*
631	8/500	1299/999*
630	8/250/CD	899*
575	5/250/CD	899*
550	5/160/CD	799*

COMPU AMERICA "The Computer Specialist"
1-800-533-9005

Come and see our HUGE showroom! 4-Year On-Site Warranty Avail.
Sales (310) 446-1771
FAX (310) 475-7744

CALL US LAST FOR THE BEST PRICE! WERE OPEN ON SATURDAY!!!

APPLE MULTISCAN 15" COLOR DISPLAY $349!

PM 9500/132 16/1GIG/CD WITH ATI 2MB VIDEO CARD SALE $3495

PM 8500/120 16/1GIG/CD WITH ATI 2MB VIDEO CARD SALE $3399

RADIUS

PRESSVIEW 21SR 21"	2999
PRESSVIEW 21 21"	1895*
PRECISION COLOR 21"	1499*
INTELLICOLOR 20E 20"	1399*
SUPERMAC 20"	895*
RADIUS 15" COLOR PIVOT	399*
THUNDER COLOR 30/1600	1899
THUNDER COLOR 30/1152	1599
THUNDER 8/1600	499

MONITORS

Apple MS 15" / 1705 17"	349/729
Apple 1710AV / 20"	999/1899
Sony 15SF2 / 17SF2	479/859
Sony 17SE1 / 20SE1	1099/1899
NEC 15XV / 17XV	435/779
NEC 15XE	559
NEC 17XP / 21XP	1099/2099
PORTRAIT DISPLAY 1700 .26	1049
PORTRAIT DISPLAY 1700 .28	999

10435 Santa Monica Blvd. LA, CA 90025
All prices subject to change without notice and are cash discounted.

POWERBOOKS

5300CE/117	32/1GIG	5349
5300C/100	16/750	3399
5300C/100	8/500	2995
5300CS/100	16/750	2595
5300CS/100	8/500	2199
5300/100	8/500	1399
190CS/66	8/500	1889
190/66 MONO	8/500	1599
520	4/240	1099/999*
520C Ref.	4/160 & 240	1299/1399
520C Ref.	12/320/FAX	1999
540C	4/320	2499*
540C	12/500/FAX	3199*
DUO 280	4/240	1599
DUO 280	12/240/FAX	1999
DUO 280C	4/320	2499
DUO 280C	12/320/FAX	2995
150	8/250	989

PRINTERS

StyleWriter 2200 / 2400	349/299
Apple Select 300	499
Apple Personal Laser 300	349*
Apple Personal Laser 320	599
Apple LaserWriter Select 360	1199
Apple LaserWriter 4/600PS	799
Apple LaserWriter 12/600PSC	5899
Apple LaserWriter 16/600PS	2099
HP 4MV 11x17	2799
HP DeskWriter 660	289
HP DeskWriter 660C	399
HP 5MP PostScript	999
HP LJ 4M Plus	1869

STYLEWRITER 2400C ON SALE $299

CIRCLE 467 ON READER SERVICE CARD

AEON

BENEFIT FROM THE FACT THAT WE HAVE NO LIFE AND SIT AROUND MAKING THIS STUFF WORK.

http://aeon.com
1-800-935-2366

CIRCLE 437 ON READER SERVICE CARD

UNBELIEVABLE LOW PRICES

HARD DRIVES(1 YR WRNTY)

CAPACITY	INTERNAL	EXTERNAL
20MB	$40	$80
40MB	$58	$98
80MB	$85	$135
270MB	$125	$165
330MB	$159	$199
540MB	$185	$225
1080MB	$345	$385

FLOPPY DRIVES (90 DAYS WRNTY)
800K--$80 1.44MB--$150

MEMORY

30 PIN QUADRA 900,950,700, IIVX,II,IICI,IISI,SE30,LCII
1MB 1X8-80NS $34
2MB 2X8-80NS $74
4MB 4X8-80NS $129

72 PIN ALL POWER MACS 6100,7100,8100, QUADRAS,CENTRIS,PERFORMAS,LCS.
4MB 1X32 $134
8MB 2X32 $275
OTHERS CALL

KAHLON, INC. 1-800-317-9989
22699 OLD CANAL RD PH: 714-637-5060
YORBA LINDA CA 92687 FAX:714-637-5597
CORP., SCHOOL & GOVT. P.O. WELCOME
OVER 6 YEARS IN BUSINESS

CIRCLE 444 ON READER SERVICE CARD

WE BEAT ANY PRICE!

MAC TALK

POWER PC
Quadras & Powerbooks
DISPLAYS, SCANNERS
PRINTERS, MODEMS
DEALERS AND INTERNATIONAL SALES OK
800-622-5557
(818)225-9327
FAX
(818)225-8627
22543 Ventura Blvd., Suite 226
Woodland Hills, CA 91364

CIRCLE 540 ON READER SERVICE CARD

LOWEST PRICES
BEST SERVICE
PCI POWER MACS POWERBOOKS
PERFORMAS POWER PCS
QUADRAS, MONITORS, PRINTERS
CALL FOR QUOTES
800-799-4622
310-358-9000
FAX 310-358-9100
Dealers & International Orders Welcome
Same Day Shipping in USA
Call for any custom made configuration
"Best Computer Source"
–Computer Magazine
We will beat any verifiable price!
COMPU AGE
THE SOURCE TO MACINTOSH WORLD
303 S. Robertson Blvd., Beverley Hills, CA 9021

CIRCLE 542 ON READER SERVICE CARD

MAC SUPER DISCOUNT CENTER
•BUY•SELL•TRADE•NEW•USED•
Quadra 650/950 ..... $1499/1649
Performa 450/475..... $649/829
LW 300/320 Toner..... $359/559
Performa 630 Complete $875
Mac LC 575 8/320 KB $1199
PowerBooks (New & Refurb). Lowest
PowerMacs (New & Refurb). In Stock
Quadras & Centris ..... In Stock
Macs (All other models) ..... Lowest
Specializing in Educational Orders
MP-Computers
800-445-6767 Orders Only
415.988.0661 Info & International
415.968.0509 Fax

Factory Refurbished Macs
Performas include keyboard, color monitor and ClarisWorks. 90 day warranty.
Performa 550, 575 and LC 580.....Call
Perf. 630 5/250 CD w/14" color monitor.....$899
Perf. 630 8/250 CD w/14" color monitor.....$999
Perf. 631 8/500 CD w/14" color monitor....$1049
Perf. 631 8/500 CD w/15" Multiscan.....$1125
Perf. 6116 8/700 CD w/15" Multiscan.....$1349
PowerMac 7100 and 8100.....Call
Powerbook Duo 230 4/80.....$799
Powerbook 145 and 150.....Call
Powerbook 520 4/240.....$1149
Powerbook 520c 4/240.....$1499
Visa/Mastercard/American Express No Surcharge.
Returns subject to a 15% restocking fee. Prices subject to change without notice.
Kiwi Computers, PO Box 67381, Los Angeles., CA 90067
Call Toll Free: 1-800-334-5494
International (310)553-4507 Fax (310)286-9667
Hours: Mon-Fri 8am-5pm, Sat 9am-2pm PST

CIRCLE 404 ON READER SERVICE CARD

Mac Pro Systems & Software
Since 1985
One Call And Any Ad is a Mac Pro Ad
Small Ad = Huge Savings for You
Buy • Sell • Trade • Repair • New • Used
The PowerMac & PowerBook Experts
Every Model In Stock And Ready To Ship
Lowest Mac & Memory Prices
The Best Repairs Fast
All Parts Available
Call For Our Wholesale Specials Fax
1-800-525-3888
Fax: 408-369-1205
Visa/MC/Amex/Disc/Tech/Education/PO's Welcome

CIRCLE 476 ON READER SERVICE CARD

THE MAC SOLUTIONS HOUSE

BUY, LEASE Or RENT.
Configure Your Own System
Package or Choose A Bundle

Power Mac 8500/120 SuperSystem
• Power Mac 8500/120MHz 32MB RAM/1 GB HD/4xCD ROM/PCI Slots
• Sony 20" Trinitron Monitor • Microtek IISPX Color Scanner • HP 5MP Laser Printer • Keyboard • PhotoShop, Claris Organizer, OCR, Bundle

FREE! CLARIS ORGANIZER with All System Purchases!

7500/100 Publishing System $191 p/m*
• PowerMac 7500/100 32/1GB/4x CD • Apple 17" Trinitron Monitor
• Hewlett Packard 5MP 600dpi Laser • Microtek IISPX Scanner w/PhotoShop, OCR • Extended Keyboard, Mouse & Cables
Power Mac 7200/75 8/500 HD/4xCD ROM w/14" HiRes Color Monitor, Ext. Keyboard .....$1899/$65 p/m

7200/90 Home/Office System $119 p/m*
Have We Got A Great Home Office System For You!
•PowerMac 7200/90 16/500MB/4x CD • 15" MultiRes Monitor
•Apple LaserWriter 4/600 • Global Village 28.8 FAX/Modem
•ClarisWorks, Quicken • Keyboard, Mouse & Cables

More Than 10 Years Computer Experience
1 (800) 499-4073
(310) 223-1370 • International: (310) 223-1373

DISCOUNT WAREHOUSE

MORE MACS!
Power Mac 7200/75 8/500 HD/4xCD $1350
Power Mac 7200/90 16/500 HD/4xCD $1799
Performa 6200 100MHz 8/1.2GB/CD/15" $1799
Performa 6300 100MHz 16/1.2GB/CD/15" $2599

HARD DRIVES, DIMMS & SIMMS
COMPARE OUR DRIVE PRICES w/Our COMPETITORS!
730MB Hard Drive.....Int $159/Ext $225
1 GB Internal Hard Drive...$269 2GB.....$595
32MB DIMMs.....$925
64MB DIMMs.....$1890

PRINTERS, SCANNERS, MONITORS, MODEMS
Hewlett Packard LaserJet 4MV (16ppm, 600dpi tabloid).$2695/$99*
LexMark12PPM,1200DPI Laser Printer.....$1595
EPSON Stylus PRO 720dpi Photographic Color & B/W Inkjet Printer..$599
MAG 17" .26 MultiRes Trinitron Color Monitor.....$725
EXTERNAL 28.8 FAX/MODEM.....$159
UMAX MIRAGE D-16L 30-Bit TABLOID Scanner $895/$50
Large Format (12"x17") • 800dpi • PhotoShop, OCR & MagicMatch Software
*per month on ABC Lease or Finance Plan

WE CARRY HARDWARE & SOFTWARE FROM VAST NUMBER OF MANUFACTURERS - CALL FOR DETAILS

ADVANCE BUSINESS CENTER

INSTANT CASH BACK or REBATE!
Ø DOWN, INSTANT CASH BACK and BEST PAYMENTS on LEASE PLANS
NEW BUSINESS OR SELF EMPLOYED WELCOME!

THE MOBILE OFFICE SYSTEM
A Complete PowerPC Office Anywhere You Go!!
• PowerBook 5300C 100MHz 16 RAM/ 750 HD/ Color Active Matrix Screen (PowerPC, 16bit Sound, 2 PC Card Slots, Infra-Red, & MORE!)
• 28.8 FaxModem
• Targus Deluxe Carrying Case
• HP DeskWriter NEW! 340 Port. B/W & Color Printer
• ABC DELUXE PowerBundle: Symantec GreatWorks, Norton Utilities, Hard Drive Utility Software & Surge Suppressor.

PowerBook 5300CS 8/500 Executive Package (same as above, but w/PowerBook 5300CS 8/500 .....$3279/$109 p/m
PB 5300CS 100MHZ 8/500MB $2299
PB 5300C 100MHZ 16/750MB $3595
PB 5300CE 117MHZ 32/1GB w/28.8 Modem, Case ....$181 p/m

MAC CLONE AUTHORIZED DEALER
RADIUS 8100/ (110 MHz) 16/700 4X CD, Keyboard $1895
POWER COMPUTING 8MB/850/4xCD 120MHz PPC..$1995
POWER COMPUTING 8MB/500 120MHz PPC $1785
Please Call for More Memory, Larger HD or CD ROM Prices
CALL ABOUT NEW SUPERMAC/UMAX CLONES!

Advance Business Center • 23510 Telo Ave., Suite 5, Torrance, CA 90505
1 (800) 499-4073
fax: (310) 223-1380

March 1996

CIRCLE 483 ON READER SERVICE CARD

MDW Technologies
1-800-883-7483

HARD DRIVES
WE SPECIALIZE IN
AUDIO/VISUAL & BARRACUDA DRIVES

MICROPOLIS			SEAGATE		
1GB 4221AV	8ms	$895.	ST12550N	8ms	$925.
3GB 3243AV	8ms	$1295.	ST15150N	8ms	$1295.
0GB 1991AV	10ms	$2195.	ST410800N	11ms	$2095.

WE ONLY SELL
HI- PERFORMANCE DRIVES
FASTEST DRIVES MADE

CIRCLE 430 ON READER SERVICE CARD

WANTED:
USED MACS!
BUY • SELL • TRADE
Top $ Paid Via FedEx Next Day Air!
Friendly, courteous service from the Pacific NW!

PACIFIC COMPUTER EXCHANGE
PORTLAND, OR
1-800-790-3881
FAX 503-239-8424

CIRCLE 451 ON READER SERVICE CARD

MacGlobal
SYSTEMS AND PERIPHERALS • SALES AND SERVICE

Performas
410/466/476 Call
550 5/160 $799
580 5/500/CD $949
631 8/500/CD $985
6118 8/500/CD $1,350

PowerBooks
160/165/170/180 Call
150 4/120 $899
520 4/240 $1,150
520C 4/160 $1,350
540C 4/320 $2,300

Power Macs
7200 8/500 $1,580
7500 16/500 Call
8500 16/500 Call

Quadras
630 8/250 $900
650/800/840/950 Call

Memory
4 MB 72-pin $110
8 MB 72-pin $210
16 MB 72-pin $390

Printers
Stylw II $185.00
Stylw 1200 $210
Laser 300 $285
Laser 320 $490
Laser 4/600 Call

Monitors
14" App. Color+ $235
15" App. Multi. $365
17" Std. $725
20" GS $540

We Buy!

TOP DOLLAR paid for memory, PowerBooks and CPUs!

Call us!
Phone: [408] 268-3300
Fax: [408] 997-1400

MacGlobal

CIRCLE 479 ON READER SERVICE CARD

A.M.S.
" The Professional Solutions "
1. 800. 847.4622

*** BUSINESS LEASING ***
TEL: (310) 314-7372
FAX: (310) 314-7512
Prices are subject to change without notice
Advanced MAC Systems

POWER MAC

7200/75	8/500/CD	$1299
7200/90	16/500/CD	$1669
7200/90	24/1Gb/CD	$2069
7500/100	16/1Gb/CD	$2579
7500/100	48/2Gb/CD	$3999
8500/120	16/1Gb/CD	$3559
8500/120	48/2Gb/CD	$5149
9500/120	32/1Gb/CD	$3859
9500/120	80/2Gb/CD	$5679
9500/132	48/2Gb/CD	$4799
9500/132	80/2Gb/CD	$5869

POWERBOOK

2300c/100	8/750Mb	$3469
5300/100	8/500Mb	$1679
5300c/100	8/500Mb	$3259
5300c/100	16/750Mb	$3599
5300cs/100	8/500Mb	$2249
5300cs/100	16/750Mb	$3059
5300ce/117	32/1.1Gb	$5459

MONITORS

Mitsubishi 21TX	$1939
Pressview 21SR	$2999
NEC XP21 Display	$2149
Precision View 17	$ 879
Apple 15"MultiScan	$ 379
Sony 15Sf MultiScan	$ 469
Sony 17Sf MultiScan	$ 859
Apple 17" Multiscan	$ 729
Apple MultiScan 1710	$ 899
ViewSonic 17PS	$ 899
ViewSonic 21PS	$1769

PRINTERS

Color LW 12/600 PS	$5999
LW 16/600 W/Toner	$2099
LW Select 360 w/Toner	$1149
LW 4/600 PS w/Toner	$ 819
Color StyleWriter 2400	$ 369
FARGO Pictura 310e	$4298

IOMEGA ZIP $185
JAZ - DRIVE $599

SCANNER

AGFA Arcus II Transp	$1769
AGFA StudioScan IIsi	$ 859

Graphic Card & Accelerator ✱ SPECIAL ✱ SPECIAL ✱

Matrox MGA Millennium PCI 4MB	$ 629
ATI Xclaim GA 4MB PCI	$ 469
Diamond Javelin Video 3240XI 4MB	$ 539
ATTO ExpressPCI SCSI	$ 349
FWB JackHammer Accelerator	$ 389
Radius Thunder Clr 30/1600 PCI	$1899
Radius Thunder Clr 30/1152 PCI	$1549
EASYCOLOR 1600/16	$ 549
IMS TWIN TURBO 128M 4MB	$ 559
TRUVISION TARGA 2000 NUBUS	$3839
TRUVISION TARGA 2000 PCI	$4389
Performa 6300CD 16/1Gb/CD	**$2479**

7500/100 CD $3575
32/1Gb/CD, 15" Monitor
2Mb VRAM, Apple Keyboard.

8500/120 CD $5849
48/2Gb/CD, 17" Monitor
4Mb VRAM, Apple Keyboard.

9500/132 CD $8699
80/2Gb/CD, 21" Monitor
ATI 4Mb Xclaim GA, Apple Keyboard.

Universities & Government P.O.'s are Welcome. Int'l orders (310)-314-7512

VISIT OUR WEB SITE AT "WWW.WWSWORLD.COM/AMS"

CIRCLE 470 ON READER SERVICE CARD

Powermacs

00/75 8/500/cd	Call
00/90 16/1gb/cd	1999
00/100 16/500/cd	2459
00/100 16/1gb/cd	2699
00/120 16/1gb/cd	Call
00/120 16/2gb/cd	Call
00/120 16/1gb/cd	Call
00/132 0/0/0	2699
00/132 16/1gb/cd	3699

Performas

0CD 12/500/DOS	Call
16CD/60 8/700	Call
15CD/75 8/1gb	Call
00CD/75 8/1gb	Call
05CD 8/1gb	Call
20CD 16/1gb	Call
00/100 CD	Call

ll Performas come with onitor, keyboard, modem d bundled softwares/cds
no monitor with 6220

orkgroup Servers

50 16/700/cd/AS	2599
50 16/700/cd	2079
50 16/700/cd/Inet	2399
50 16/1g/cd/DAT	4745
50 16/1g/cd/Inet	3999
50 cd/Inet/dat/AS	5499
50 16/2g/cd/dat	6669
50 16/2g/cd	5499

Apple Printers

lewriter 1200	Call
yewriter 2400	Call
rt. Stylewriter 2200	399
ser Select 320	699
serwtr 4/600 PS	Call
ser Select 360	Call
l. Laserwtr 12/600	5999

Call for current best prices & items not listed

Powerbooks

190/66 8/500	1599
190CS/66 8/500	1879
5300 8/500	1699
5300cs/100 8/500	2259
5300c/100 8/500	3069
5300c/100 16/750	3599
PB 5300ce/117 32/1g	5399
Duo 2300c	Call

Apple Monitors

Multiplescan 14"	345
Apple 15" Color	Call
Multiplescan 1705	749
Applevision 1710	945
AppleVision 1710AV	Call
Multiplescan 20"	1899

Hewlett Packard

Deshwriter 600	259
Deskwriter 340SF	375
Deskwriter 660C	399
Laserjet 5MP	999
Laserjet 4M Plus	1849
Deskjet 1600CM	1869
Deskjet 850C	539
Deskjet 855C	569
Copyjet-M (3 in 1)	2875
Laser 4MV 11x17	2679
Laser 5SiMX	3699
Scanjet 4C	919
Scanjet 4S	299
Scanjet 4Si	Call
Jet Direct card	299
Duplex option 4M+	495

Radius

Precisionview 17"	945
Pressview 21SR	3095
Multiview 21"	1769
Precisionview 21	2225
Thundercolor 30/1600	1895
Thundercolor 30/1152	1499
Thunder 30/1600	1139
Thunder IVgx 1152	1895
Precesioncolor 8/1600	459

N.E.C

XE15/XP15	575/675
XE17/XP17	975/1025
XE21/XP21"	1669/1939
XV15/XV17	445/749

Epson

ES-1000C	719
ES-1200C	919
ES-1200C Pro	1095
Clr. Stylus	475
Clr. Stylus II	429
Clr. Stylus Pro	575
Clr. Stylus Pro XL	1745
Postscript option	Call

Nikon

Coolscan LS10E	1269
ScanTouch AX 1200	1569
Super Coolscan	Call

UMax

Powerlook	Call
UC 1260 w/Phtoshp	899
Vista S6/S8	599/699

Agfa

Studio scan II Si	879
Arcus II	1799
Transparency F/IISi	385

Sony

CPD-15 SF2	495
CPD 17 SF2	865

Lease Specials

7200/90 16/500/CD With ext. keyboard/15" monitor only $80/month

7500/100 16/1GB/CD with ext. keyboard /1710 monit only $131/month

8500/120 16/1GB/CD With ext. keyboard/Apple 20" m Only $188/month

9500/132 48/1GB/CD ATI Video /Apple 20" only $ 216/month

7200/90 16/500/CD $65/month

7500/100 16/1GB/CD $100/month

8500/120 16/1GB/CD $127/month

All lease payments are for 36 month FMV

Mac Storm
In California *Since 1988*
800-594-4007
Fax 800-329-9553
Local & Int'l tel (310)829-9780
Fax (310)315-1009
International & Dealer sales Welcome
Corporate Leasing Available
Prices reflect 3% cash discount and may change
We accept VISA, M/C, AMEX, DISCOVER

CIRCLE 440 ON READER SERVICE CARD

MACMAIL
CALL WITH THE LOWEST PRICE EVER CALL

MACS, ETC

PMAC7200/75•8/500/CD	$1350
PMAC7200/90•8/500/CD	$1595
PMAC7200/90•16/500/CD	$1775
PMAC7500/100•16/500/CD	$2575
PMAC7500/100•16/1G/CD	$2750
PMAC8500/120•16/1G/CD	$3740
PMAC8500/120•16/2G/CD	$4295
PMAC9500/120•16/1G/CD	$3450
PMAC9500/132•16/1G/CD/VI	$3740
CUSTOM CONFIGURATIONS	CALL

PERFORMAS

631/CD/8/500	$1330
640/CD/12/500	$1870
5215/CD/8/1G	$1815
6116/CD/8/700	$1590
6200/CD/8/1G	$1795
6300/CD/16/1.2GB	$2625

Prices include Apple Display, Keyboard, Modem & Software

MONITORS

Apple MultiScan 14"	$329
Apple MultiScan 15"	$389
Thunder Color 30/1152	$715
Apple 1710 AV Display	$999
Apple 20" Multiscan	$1875
Radius PressView 21SR	$2940
RasterOps Superscan 17	$880
RasterOps Superscan 20	$1380
Thunder Color 30/1152	$1495
Precision Color 8/1600	$459

STORAGE DEVICES

QUANTUM 700MB EXT.	$210
QUANTUM 1GIG EXT.	$295
SYQUEST 135MB E-Z DRIVE	$229
SYQUEST 88MB EXT.	$289
SYQUEST 200MB EXT.	$440
SYQUEST 270MB EXT.	$432

PRINTERS, ETC.

STYLEWRITER 1200	$229
COLOR SW 2400	$309
COLOR WS 2400	$359
LW 4/600 PS W/Tnr	$720
LW PRO 16/600 W/TNR	$1995
LW 12/600 W/Kit	$6110
GENERIC EXTENDED KB	$50
APPLE EXTENDED KB	$143
APPLE DESIGN KB	$81
APPLE CD 600E W/SW	$299

POWERBOOKS

POWERPC 5300 CS/100 8/500	$2345
POWERPC 5300 CS/100 16/750	$2825
POWERPC 5300 C/100 8/500	$3195
POWERPC 5300 C/100 16/750	$3750
PB 190/66 8/500	$1745
PB 190/66CS 8/500	$2055

UPGRADES

DRIVES

•SE HABLA ESPAÑOL
•Int'l Orders Welcome
•Leasing Plans
•FEDEX•UPS•Etc...
•Prices may change
•Price represent cash discounts

MACMAIL
Miami, Florida 1-800-622-6844
International call (305) 639-9646

VISA MasterCard AMERICAN EXPRESS COD

800•MAC•6844

CIRCLE 523 ON READER SERVICE CARD

MAC PROFESSIONAL INC.

6430 VARIEL AVE, #105, WOODLAND HILLS, CA 91367

800.244.4622

VISIT OUR WEB SITE http://www.w2.com macprofessional/

LOCAL & INTERNATIONAL ORDERS **818.719.9200**

FAX **818.719.9115**

ALL PRODUCTS CARRY 1 FULL YEAR WARRANTY. ALL PRICES ARE CASH DISCOUNTED & SUBJECT TO CHANGE. WE ACCEPT VISA/MC/AMEX NO TAX OUTSIDE CA. CONSULTANT, DEALER & INTERNATIONAL SALES WELCOME.

PCI POWER MACS

7200/75	8/500-CD	1333
7200/75	16/1000-CD	1699
7200/75	48/1000-CD	2475
7200/90	16/500-CD	1695
7200/90	24/1000-CD	2077
7200/90	40/1000-CD	2577
7500/100	16/500-CD	2395
7500/100	24/1000-CD	2899
7500/100	48/1000-CD	3555
8500/120	16/1000-CD	3550
8500/120	24/2000-CD	4095
8500/120	48/4000-CD	4995
9500/120		CALL
9500/132	16/2000-CD	3650
9500/132	48/2000-CD	4575
9500/132	80/4000-CD	5755

DIMM MEMORY

8 / 16 MB	255 / 455
32 / 64 MB	899 / 1799
256 K / 512 K CACHE	249 / 329
1MB / 2 MB VRAM	85 / 185

SIMM MEMORY

4 MB	126
8 MB	249
16 MB	444
32 2K REFRESH	888

ATTO

EXPRESS STRIPE RAID	333
EXPRESS PCI-SC PCI	339
ATTO PCI-MC MULTI CHANNEL	759
SILICON EXPRESS IV NUBUS	888

PERFORMAS

6200	8/1000-CD	1785
6200	16/1000-CD	1995
6220	16/1000-CD-TV	1875
6300	16/1.2-CD	2495

QUADRA 950

INCLUDES 17" RADIUS & KEYBOARD

16 / 1000	2695
32 / 2000	3555
64 / 4000	4555

SCANNERS

AGFA ARCUS II	1777
AGFA STUDIO SCAN II SI	888
AGFA VISION 35	3888
NIKON SUPER COOLSCAN	1950
NIKON LS4500 UP TO 4X5 FILM HI-RES	7995
POLAROID 2700 DPI	1395
UMAX POWERLOOK	1888
VISIONEER VX	367

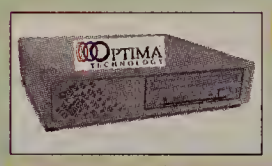
POWERBOOKS

FREE CARRYING CASE WITH EVERY POWER BOOK PURCHASE

5300 CE	32/1GIG	5299
5300 C	16/750	3545
5300 C	8/500	2999
5300 CS	16/750	2695
5300 CS	8/500	2295
5300	8/500	1799
190 CS	8/500	1855
190	8/500	1595
150	8/250	1049
520 C/540 C		CALL

SPECIAL

520	4/240	1177
520	8/500	1399
520	12/800	1775



OPTIMA

DISKOVERY 650 CDR WITH QUIK TOPIX AND 5 CD'S

1499

YAMAHA / JVC / FWB CD WRITER

4X CD WRITER & TOAST SOFTWARE	2750
2X CD WRITER	1250
JVC DOUBLE SPEED CDR	1175
JVC QUAD SPEED CDR	2555
FWB 2X CDR	1444
FWB 4X CDR	2675

CAMERA

LEAF LUMINA	4650
LUMINA AUTO 35	3450
LUMINA SLIDE	1950
KODAK DC 40	825
CHINON ES 300	949
QUICK TAKE 150	675
FUJI DS 505	10495
FUJI DS 515	13333
DICOMED 4X5 VIEW CAMERA	19995

GLOBAL VILLAGE / SUPRA

SUPRA FAX / MODEM 28.8 v.34	199
SUPRA EXPRESS 28.8 PLUS	149
TELEPORT PLATINUM	189
MERCURY 19.2 FOR 520/540C	299
(PCMCIA) 28.8 FOR 5300	359
(PCMCIA) 28.8 W/10BASE-T	499

EXTERNAL DRIVE

SYQUEST 88 / EZ DRIVE	369/239
SYQUEST 200 / 270 MB	475/469
ZIP DRIVE / JAZ DRIVE	196/579

MONITORS

14/15/17" APPLE VISION	349/379/949
1705/1710AV MULTISCAN	777/995
APPLE 20" MULTISCAN	1859
RADIUS PRECISION VIEW 17	888
RADIUS PRECISION VIEW 21	1988
RADIUS PRESSVIEW 17SR	1950
RADIUS PRESSVIEW 21SR	3095

SONY

17 SF II	895
17 SE I	1095
20 SF II	1855
1425	315

PCI GRAPHIC CARDS

RADIUS THUNDER 30/1152	777
RADIUS THUNDER 30/1600	1144
RADIUS THUNDER COL 30/1152	1595
RADIUS THUNDER COL 30/1600	1888
EA RESEARCH 1600/16	535
TRUVISION TARGA 2000 PCI	4499
TRUVISION TARGA 2000 NUBUS	3849
VIDEO VISION STUDIO 2.0	3150

PRINTERS

LASER 320	539
LASER SELECT 360	1177
LASER16/600	2050
COLOR LASER 12/600	5995
LASER 4/600	825
COLOR STYLE WRITER PRO	395
COLOR STYLE WRITER 2400	319
STYLE WRITER 1200	175
HP 5 MP	999
HP DESK JET 850 C	499
HP 4 MV 11X17	2695
HP 1600 CM	1949
GCC PRINTERS	CALL
IRIS PRINTER	CALL
FUJI PG 3000 400DPI	18700
FARGO PICTURA 310	3444
FARGO PRIMERA PRO	1375
EPSON STYLUS PRO 11X17	1795
STAR COLOR PRINTER	***99***

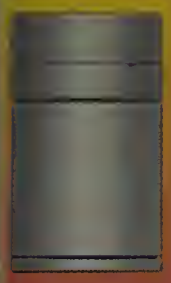
FACTORY REFURBISHED

PERFORMA 630 4/250 15" REF	950
RADIUS 17" PRECISION COLOR REF	750
RADIUS 20" PRECISION COLOR REF	1450
SUPER MAC 20" REF	1095
SUPER MAC PRESSVIEW 21 REF	1595

• GOV'T, FORTUNE 1000 & SCHOOL P.O.'S., WELCOME • LEASING AVAILABLE •
• WE GUARANTEE BEST AVAILABILITY, PRICE, SERVICE, DELIVERY & SUPPORT •
• WE SPECIALIZE IN CUSTOM MADE CONFIGURATIONS SINCE 1988 •

CIRCLE 495ON READER SERVICE CARD

Disk Arrays 2 GB TO 32GB



- Raid levels 0, 1, & 5
- Up to 30 MB/sec transfer rate
- Plug and play convenience
- 3-year warranty - parts and labor
- AV Drives - Fast & Wide SCSI

For VideoVision, TARGA, and Media 100 on Quadra and PowerMac Systems

890 Array **$2895.00**

APEX™ 4.6 GB External Optical Hard Drive

Faster than the average hard drive, lower cost-per-megabyte, 30 year shelf life. Average seek time 17msec., transfer rate 4.5 MB/sec.

FREE 4.6 GB magneto / optical rewritable cartridge with purchase.

$1469.00

1GB External Hard Drive

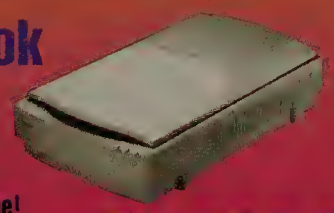
Includes cable, terminator, and FWB formatting software.

$299.99

UMAX PowerLook

1200/9600 dpi, 30bit color, 1 pass scanner.

FREE KPT, Typestry, MagicScan, Photoshop, and more with purchase!



$1869.99

LEASING SPECIALISTS

FAST APPROVAL

LOWEST RATES • NO ADVANCE PAYMENT

100% TAX DEDUCTIBLE

POWERMAC

9500/120	0/0/NO/CD	$2650
9500/120	16/0/CD	2950
9500/120	16/1GB/CD	3150
9500/120	32/1GB/CD	3575
9500/120	48/2GB/CD	3995
9500/132	**0/0/NO/CD**	**2750**
9500/132	16/1GB/CD	3325
9500/132	16/1GB/CD/ATI	3525
9500/132	16/2GB/CD	3875
9500/132	48/2GB/CD	4725
8500/120	16/1GB/CD	3695
8500/120	48/1GB/CD	4495
8500/120	16/2GB/CD	4295
8500/120	48/2GB/CD	5095
7500/100	**16/500/CD**	**2425**
7500/100	**16/1GB/CD**	**2625**
7200/75	8/500/CD	1299
7200/90	8/500/CD	1499
7200/90	16/500/CD	1699

POWERBOOKS

190	8/500	$1629
190CS	8/500	1899
5300	8/500	1625
5300CS	**8/500**	**2298**
5300CS	16/750	2799
5300C	8/500	3099
5300C	16/750	3525
5300CE	32/1GB	5425
DUO230OC	8/750	3275
150	4/250	CALL
520	4/240	1395
520C	4/240	1645

QUADRA / PERFORMA

Performa 638	8/350/CD	$1325
Performa 5215	8/1GB/CD	1725
Performa 6116	8/700/CD	1489
Performa6200	8/1GB/CD	1725
Performa6205	8/1GB/CD	1950
Performa6220	16/1GB/CD/TV	1745
Performa6300	**16/1.2GB/CD**	**2495**

MONITORS

Apple	**Multiscan 15"**	**379**
Apple	**Multiscan 1705**	**750**
Apple	**Multiscan 1710**	**CALL**
Apple	Multiscan 1710AV	1020
Apple	Multiscan 20"	1895
Sony	CPD15SF2 15"	499
Sony	CPD17SF2 17"	859
NEC	XV15 15"	465
NEC	**XV17 17"**	**749**
NEC	**XP21 21"**	**2195**
Radius	**PressColor 17**	**925**
Mag	**DXF17"**	**699**
Viewsonic	**20G 20"**	**1475**

HARD DRIVES

INTERNAL:

Apple	**700MB 3.5"**	**$ 169**
Quantum	**1GB Fireball 3.5"**	**259**
Conner	**2.1GB 2105 3.5"**	**595**
Seagate	**2GB Barracuda 3.5"**	**799**
Quantum	**2.1GB Atlas LP 3.5"**	**729**
Quantum	**4.2GB GrandPrix 3.5"**	**899**
Seagate	**4GB Barracuda 3.5"**	**1199**

EXTERNAL:

Apple	**700MB**	**219**
Quantum	**1GB Fireball**	**299**
Quantum	**4.2GB GrandPrix 3.5"**	**979**
Conner	**2.1GB 2105**	**665**
Syquest	**200 Meg Drive**	**410**
Syquest	**270 Meg Drive**	**410**
Syquest	**EZ-135 Drive**	**229**
Iomega	**Zip Drive**	**189**

CD ROM

Pinnacle	230MB Tahoe	499
Apple	**600E Quad Speed**	**299**
Pioneer	DWS114X no software	2850
Pinnacle	**RCD1000**	**1329**

(2x Recordable/includes TOAST and 2CDs)

SCANNERS

AGFA	StudioScan IIsi	$ 859
HP	**Scanjet 4C**	**915**
HP	**Scanjet 4s**	**CALL**
UMAX	UC1260 / Phtshp.LE2	699
Umax	VistaS6Scanner	549
Umax	Powerlook 2	2899
Microtek	Scanmaker 35t	659
Microtek	ScanMaker III / Phtshp.	1949
Epson	**1200C**	**935**
Nikon	**Super Cool Scanner**	**1845**
Nikon	**ScanTouch AX1200**	**1175**
Visoneer	**Paperport VX**	**349**
Visoneer	**Paperport**	**289**

MODEMS

Apple	GeoPort Telecom Kit	$ 128
Supra	ExpressModem288	179
Supra	FaxModem288	199
GlobalVillage	Teleport Platinum 28.8	199
U.S. Robotics	**Mac & Fax Sportster**	**209**
Megahertz	**CruzCard 28.8**	**269**
Megahertz	**CruzCard14.4**	**189**

PRINTERS

Apple	**StyleWriter 1200**	**$ 249**
Apple	Color StyleWtr 2200	349
Apple	Color StyleWtr 2400	349
Apple	LW 4/600PS	795
Apple	LW Select 360	CALL
Apple	**LW 12/600PS/Color**	**5798**
HP	DeskWriter 660C	389
HP	DeskJet 855C	495
HP	LaserJet 5MP	999
HP	LaserJet 4MPlus	1850
HP	LaserJet 4MV (11x17)	2715

MISC.

Connectix QuickCam		$ 95
MouseSystems Optical Mouse		49
Wacom ARTZII 6x8		299
Radius Videovision Studio		3100
TrueVision TARGA 2000		**3999**
Atto Fast&Wide SCSI/PCI		**CALL**
FWB Fast&Wide SCSI/PCI		**375**
Syquest 200 Meg Cartridges		**65**
Syquest 270 Meg Cartridges		**59**
Syquest 135 Meg Cartridges		**CALL**
Card Scanners		**Call**

SOFTWARE

Adobe Photoshop 3.0.4		**$ 399**
Adobe Premier 4.0		499
Pagemaker 6.0		**399**
SoftWindows 2.0 PwrMac		279
Adobe Illustrator 5.5		**299**
Quark Xpress 3.3 Pwr Mac/68kMac		639/585
Form Z 2.7	**SPECIAL**	**CALL**
Electric Image	**SPECIAL**	**CALL**

MEMORY

SIMMS/DIMMS/POWERBOOK

4 Meg Simms 72 Pin	109
8 Meg Simms 72 Pin	199
16 Meg Simms 72 Pin	410
32 Meg Simms 72 Pin	799
8 Meg Dimms	219
16 Meg Dimms	429
32 Meg Dimms	879
64 Meg Dimms	CALL
8 Meg Powerbook 5300c	295
16 Meg Powerbook 5300c	575
32 Meg Powerbook 5300c	999
1MB VRAM	75
256K L2 CACHE	199
512K L2 CACHE	329

LEASE SPECIALS

Power Macintosh 7200/90
16MB, 500MB HD, CD
Sony CPD-17SF2 Monitor
Apple Design Keyboard
Complete System Price: $2,639

*Lease for only $90 per month**

Power Macintosh 7500/100
16MB, 1GB HD, CD
Sony CPD-17SF2 Monitor
Apple Design Keyboard
Complete System Price: $3,563

*Lease for only $120 per month**

Power Macintosh 8500/120
16MB, 2GB HD, CD
Apple 1710AV Monitor
Apple Design Keyboard
Complete System Price: $5,199

*Lease for only $175 per month**

Power Macintosh 9500/132
16MB, 1GB HD, CD
ATI XClaim 2MB Video Card
Apple 20" Multiscan Monitor
Apple Design Keyboard
Complete System Price: $5,499

*Lease for only $185 per month**

** Lease payment based on 36 month term with 10% buyout.*

2785 Pacific Coast Highway #178
Torrance, CA • 90505

Phone: 800-801-4622 Phone: 310-533-0496
Fax: 310-533-0501 / Email: Microutlt@aol.com

All prices reflect C.O.D./Lease orders and subject to change without notice.
Not responsible for typographical errors. All Returns subject to 15% restocking charge.

HEWLETT PACKARD radius AGFA Agfa MICROTEK PINNACLE MICRO FWB C.O.D./MasterCard/Visa/Discover/AmericanExpress

CIRCLE 472 ON READER SERVICE CARD

Mac Care

Your Digital Video Electronic Publishing Specialists

800-429-7779
Fax 714-375-6397
17131 Beach Boulevard
Huntington Beach CA 92647

PowerMac

PM 9500/132 • 32/1GB/CD. $3,995
PM 9500/132 • 32/2GB/CD. $4,250
PM 7500/100 •16/2GB/CD . $3,150
PM 7500/100 •32/4GB/CD . $3,850
PM 8500/120 •32/1GB/CD... $3,925
PM 8500/120 •32/4GB/CD... $4,675
PM 7200/75 • 8/500/CD $1,250
PBK 5300CS 16/ 750..... $2,795
PBK 190CS..... $2,595

Performa

Performa 5215..... $1,895
Performa 6116..... $1,595
Performa 6200..... $1,749
Performa 6205CD..... $1,895

Digital Video

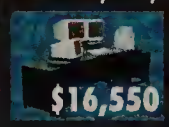
Targa 2000..... $3,775
Radius Video Vision PCI ..... $Call
Radius Telecast $4,495
Avid Campaser 8000 Package $72,000

Software

Strata Studio Pro Blitz $795
Authorware Pro 3.0..... $3,795
Adobe After Effects v3.0 lt $595
Adobe Photoshop v3.0.1..... $495
Electric Image..... $3,775
Director Multimedia Studio... $1,495
Director 4.04..... $850
Adobe Page Maker v6.0..... $595
Adobe Premiere..... $425
After Effects Production $1650

Targa Workstation COMPONENT AVAILABLE

PM 9500/132/48MB/1GB/CD



$16,550

Targa 2000 PCI, Adobe Premier 4.2, 17" Color Monitor, Apple Design Extended, 4.2GB Disk Array Wide PCI, Adobe After Effects v3.0 Production, Borris Effects. Reflects Cash Price

Pre Press System

Complete Color Pre Press System

Lease/Purchase $575 per month; Includes Power Mac 6100 24/500, 17" Color Monitor, Software, Extended Keyboard, AGFA Color Scanner, Color Proof Printer, Imagesetter w/Rip & Processor

Radius Workstation Low!!!

Quadra 840av/32/8GArray/CD

$8,495

Complete editing system at the lowest price in the world Features: Radius 8G studio array, radius video vision, adobe premiere 4.2, 500M internal source drive, Viewsonic 17G High resolution monitor, keyboard, and much more!!!!

4 Processor Workstation

DayStar Genesis MP (4 Processor)

$Call

Includes four processor, color match, Adobe Charge Extension, Kodak Color Management; 4xcd, 12 Dimm Connector; 6 PCI Slots & Much more !!

CIRCLE 405 ON READER SERVICE CARD

PC SYSTEMS DESIGN CALL NOW (800) 833-0128

Call For Our NEW CATALOG

HARD DRIVES

	INTERNAL	EXTERNAL
850MB Trailblazer 11ms (Quantum)	$215	$275
1080MB Fireball 11ms (Quantum)	$259	$319
2.1GB M4221 8ms (Micropolis)	$649	$709
2.2GB Capella 8.5ms (Quantum) Fast & Wide	$665	$785
2.5GB Barracuda 2 8ms (Seagate) Fast & Wide	$935	$1055
4.2GB Grand Prix 8.6ms (Quantum)	$975	$1055
4.3GB M3243 8ms (Micropolis)	$1170	$1250

All Hard Drives Come With A 30 Day Money Back Guarantee
All Drives Listed Are Internal. External Half Height HD Add $60, For Full Height Drive Case Add $120

We Also Carry: Syquest, I-Omega, Daystar, Radius And Much More! So Call Now!

OPTICAL DRIVES

Olympus 230 MB Magneto (Ext.) $475
Olympus 1.3GB Magneto (Ext.) $1399
PinnacleMicro APEX 4.6GB (Ext.) $1569
PinnacleMicro APEX 4.6GB (Media) $189
TORAY Phasewriter DUAL PD "New" $625
TORAY PDM 650 Media "New" $49

CD-ROM DRIVES & SCANNERS

SONY (CDS-76SB) 4 Speed External BEST BUY! $219
TOSHIBA (3701) 6 Speed External $439
Visioneer PaperPort Vx New! $299
UMAX PowerLook Pro $1895
Microtek IISPX $639
Epson Action Scanner II $495

MODEMS & PRINTERS

TelePort Platinum 28.8 $195
PowerPort Platinum PC Card 28.8 $339
Supra Express 28.8 Plus Modem $169
Supra FAXModem 28.8 MC $209
HP DeskJet 850C Printer $499
HP LaserJet 5MP Printer $995

MONITOR SPECIALS

SONY Trinitron 15sx .25 $419
SONY Multiscan Trinitron 15sf II $869
SONY Multiscan Trinitron 17se II $1779
PORTRAIT Pivot 1700 .28 Dot $969
PORTRAIT Pivot 1700 .26 Dot $1029

CALL FOR MEMORY PRICING

Buy From The Systems & Peripherals Specialists!

24 Hour Fax Line (714) 572-8051
Educational, Corporate & Governmental PO's Welcome.
All items carry manufacturer's warranty. All prices & information subject to change without notice. RMA number required for returns. Not responsible for typographical errors.

CIRCLE 514 ON READER SERVICE CARD

FREE DELIVERY

POWER MACS	PRICE	LEASE
Power Mac 9500/120 16/1GB/CD	3,399	111
Power Mac 8500/120 16/1GB/CD	3,799	95
Power Mac 7500/100 16/1GB/CD	2,759	71
Power Mac 7200/90 8/500/CD	1,630	44
Power Mac 7200/75 8/500/CD	1,249	41
Performa 5200/75 8/1GB/CD/FAX	1,849	51
Performa 6200/75 8/1GB/CD*	1,359	38

PRINTERS & ACCESSORIES		
Laserwriter Color	5,500	139
Apple 20" Monitor	1,960	49
Apple 15" Monitor	470	6
Stylewriter 220 Color	389	10
Stylewriter 2400B	389	10
Laserwriter 4/600	860	22
Design Keyboard	80	2
Geoport	99	3
Apple CD 600 Ext	299	8

60 MONTHS LEASE!

POWER BOOKS	PRICE	LEASE
Power Book 5300/100 8/500	1,699	68
Power Book 5300/100 CS 8/500	2,350	95
Power Book 5300/100 C 16/750	3,749	150
Power Book 190/66 4/500	1,799	50

SyQuest	CARTRIDGES	DRIVE
88MB	47	208
200MB	68	383
270MB	60	383
EZ 135MB	20	208

SCANNERS	PRICE	LEASE
MICROTEK, UMAX, NIKON	CALL	CALL

BUY OR LEASE ANY COMPLETE SYSTEM AND RECEIVE

$150 REBATE

COMPLETE SYSTEM: COMPUTER, MONITOR, PRINTER & KEYBOARD.

American Express Cards · MasterCard · VISA

NO CREDIT CARD SURCHARGES!

MAC SPOT 1800 680-1112
FAX 305-591-4391

Lease quotes are based on a 60 months lease program, 10 % buyout option at the end of the term - Other programs available.

TOTALLY FREE DELIVERY BY FedEx

CIRCLE 482 ON READER SERVICE CARD

L O W E S T P R I C E S G U A R A N T E E D

PowerBook 540c

The PowerBook 540c is one of Apple's top of the line color PowerBook computer, combining the high performance Motorola 68LC040 processor with an active matrix color display • It has 68LC040 processor running at 66/33 Mhz. upgradable to PowerPC processor • Built in ethernet and video out port supporting most Apple monitor display. 4 Mb of RAM expandable to 36 MB • Optional 19.2bps Global Village fax modem • High capacity Type II nickel metal hydride • Weight : 7.3 lbs *Apple Factory Refurbished

4MB /320 HD	12/500/MOD
$2449*	$2997*

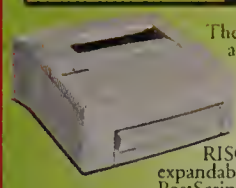
7200/75 & 90 Mhz

Mon. & KB Sold Separately

7200/75 MHZ		7200/90 MHZ	
8MB/500HD/CD	$1359	8MB/500HD/CD	$1539
16/500/CD	$1638	32/500MB/CD	$2299
24MB/1GB/CD	$2169	32MB/1GB/CD	$2529
40MB/2GB/CD	$3069	40MB/2GB/CD	$3188

Apple Power Macintosh 7200/75 and Power Macintosh 7200/90 systems offer enhanced expandability and performance that make them ideal for small and medium-size businesses, for home offices, and for running productivity applications in any size of organization. •3 industry-standard PCI expansion slots•SCSI connector for hard disks, CD-ROM drives, and other SCSI devices•Internal expansion bay for additional storage device•Up to 256MB of RAM•Up to 4MB of VRAM

RISC BASED PROCESSOR LaserWriter 320



The Personal LaserWriter 320 Provides advanced print capabilities in Apple's most affordable Adobe PostScript laser printer. It's fast, quiet, energy efficient printer that's ideal for home or office use with 300 dot per inch, FinePrint ™, PhotoGrade ™ (optional), 4 page per minute, 16 Mhz RISC AMD 29205 processor, 2 MB of RAM expandable to 8 MB, 39 scalable TrueType™ and PostScript™ font, Adobe PostScript level II, 100 Sheets or 15 envelopes, and manual feed paper tray .

LaserWriter320	LaserWriter4/600
$619	$799

5300cs Series

8MB/500HD	$2249
16MB/750HD	$2798
Mhz CruiseCard 28.8	$289
Mhz CruiseCard 14.4	$185

5300c Series

8MB/500HD	$3189
16MB/750HD	$3698
G.V 28.8 & 10-BaseT	$488
1.2GB PB HD	$688

7500 Series

Mon. & KB Sold Separately

16/500/CD	$2469
24/1GB/CD	$2938
40/1GB/CD	$3397
64/4GB/CD	$4998

8500 Series

Mon. & KB Sold Separately

16/1GB/CD	$3679
24/2GB/CD	$4438
128/2GB/CD	$7549
256MB/4GB/CD	$11298

9500 Series

Mon. & KB Sold Separately

16/1GB/CD/120Mhz	$3249
128/2GB/CD/120Mhz	$6529
16/2GB/CD/132Mhz	$3859
64/2GB/CD/132Mhz	$5197

Monitors

Apple	
MultiScan 14	$359
MultiScan 15"	$409
MultiScan 1705	$749
AppleVision 1710	$949
1710AV	$1059
MultiScan 20" .25DPI	$1899
radius	
PrecisionView 17	$969
PrecisionView 17•SR	$1989
Intellicolor 20e	$2089
MultiView 21	$1789
PrecisionView 21	$2289
PrecisionView 21•SR	$3139
SONY	
MultiScan 15sx	$439
MultiScan 15 sfII	$539
MultiScan 17 sfII	$939
MultiScan 17seII	$1089
MultiScan 20sfII	$1889
MultiScan 20se	$1989
NEC	
15" XV15"	$439
15" XE15"	$539
17" XV17"	$729
17" XE15"	$989
17" XP17"	$1039
21" XE 21"	$1769
21" XP 21"	$2149
Portrait Display Lab	
Portrait/Pivot 1700 .26 DPI	$1039
Portrait/Pivot 1700 .28 DPI	$979

5300 Series

8MB/500HD	$1679
16MB upgrade	$559
Farallon AirDock	$79
PB Carrying Case	$49

190 Series

8MB/500HD	$1598
PB Battery	$139
PB 190 8-bit Color Video	$179
Infrared Upgrade Kit	$79

Apple Macintosh Performa CPUS

6116CD 8/700/CD — $1588

Powered by PowerPC 601/60Mhz processor Includes Apple Multiple Scan 14 Display , AppleDesign keyboard, 14.4 bps Fax/Modem by Global Village Communications, Inc (with Send Fax S/W), Double speed CD-ROM, System 7.5, At Ease, eWorld by Apple Computer, Inc., ClarisWorks, Quicken, MacGallery Clip Art Treasure Pak, Click Art Performa Collection, MacLink Plus Easy Open Translators, The American Heritage Dictionary, Now Up To Date, Now Contact, Spectre Challenger,Spin Doctor Challenge,CD-ROM Titles Include: The 1995 Grolier Multimedia Encyclopedia, Electronic Arts 3D Atlas,TIME Almanac Reference Edition, The Family Doctor, Around the World in 80 Days, Club KidSoft Sampler.

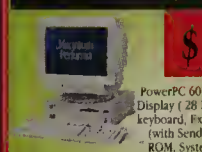
5215CD 8/1GB/CD — $1848

PowerPC 603/75Mhz ,Includes Apple 15 Display, AppleDesign kB, 14.4 bps Fax/Mod by G.V Inc. (with Send Fax S/W), 4X CD-ROM, System 7.5, At Ease, eWorld by Apple, ClarisWorks, Quicken, MacGallery Clip Art Treasure Pak, Click Art Performa Collection, MacLink Plus Easy Open Translators, The American Heritage Dictionary, Mangia, Virex, Expresso, Widget Workshop, Power Pete, WealthBuilder, EPIE's Guide to Mac Home Learning Software, The Writing Center , Fine Artist, CD-ROM Titles Include: Thinkin' Things Collection 2, The 1995 Grolier Multimedia Encyclopedia, Electronic Arts 3D Atlas,My First Incredible Amazing Dictionary,Smithsonian's America, The Family Doctor, Club KidSoft, Professor Piccolo.

6200CD 8/1GB/CD — $1848

PowerPC 603/75Mhz processor Includes Apple 15 Display (28 Dot Pitch), AppleDesign keyboard, 28.8 bps Fax/Modem (with Send Fax S/W), Quad speed CD-ROM , System 7.5, At Ease, eWorld by Apple Computer, Inc., ClarisWorks Quicken, MacGallery Clip Art Treasure Pak, Click Art Performa Collection, MacLink Plus Easy Open Translators, The American Heritage Dictionary, Mangia, Virex, Expresso, Widget Workshop, Power Pete, WealthBuilder, EPIE's Guide to Mac Home Learning,The Writing Center, Fine Artist, CD-ROM Titles Include: Thinkin' Things Collection 2, The 1995 Grolier Encyclopedia, Electronic Arts 3D Atlas, My First Incredible Amazing Dictionary,Smithsonian's America, The Family Doctor , Club KidSoft Sampler, Professor Piccolo

6205CD 8/1GB/CD — $1978

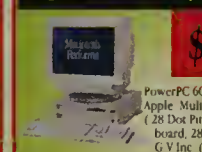


PowerPC 603/75Mhz Includes 15 Display (28 DPI), AppleDesign keyboard, Fxt 28.8 bps Fax/ Mod (with Send Fax S/W), 4X CD-ROM, System 7.5, At Ease, eWorld , ClarisWorks,Quicken, MacGallery Clip Art Treasure Pak, Click Art Performa Collection , MacLink Plus Easy Open Translators,The American Heritage Dictionary, Mangia, Virex, Expresso, Widget Workshop, Power Pete, WealthBuilder, EPIE's Guide to Mac Home Learning, The Writing Center, Fine Artist,CD-ROM Titles Include: The 1995 Grolier Multimedia Encyclopedia, Electronic Arts 3D Atlas ,Smithsonian's America, The Family Doctor , Club KidSoft Sampler, Professor Piccolo & more

6220CD 16/1GB/CD — $1858

PowerPC 603/75Mhz Monitor sold seperately Includes AppleDesign keyboard, Apple TV Video System, Quad speed CD-ROM, 14.4 bps Fax/Modem by G.V (with Send Fax S/W), System 7.5, At Ease, eWorld by Apple Computer, Inc., ClarisWorks, Quicken, MacGallery Clip Art Treasure Pak, Click Art Performa Collection, MacLink Plus Easy Open Translators, The American Heritage Dictionary, Mangia Virex, Widget Workshop, Power Pete, Personal Assist, WealthBuilder, Fine Artist, EPIE's Guide to Mac Home Learning, CD-ROM Titles Include: Thinkin' Things Collection 2, Avid VideoShop, The 1995 Grolier Multimedia Encyclopedia, more

6300CD 16/1GB/CD — $2578



PowerPC 603e 100Mhz ,Includes Apple Multiple Scan 15 Display (28 Dot Pitch), AppleDesign keyboard, 28.8K bps Fax Modem by G V Inc (with Send Fax S/W), Quad speed CD-ROM, System 7 5, At Ease, eWorld by Apple Computer, Inc , ClarisWorks, Quicken, MacGallery Clip Art Treasure Pak, Click Art Performa Collection, MacLink Plus Easy Open Translators, The American Heritage Dictionary, Mangia, Virex, Expresso, Power Pete, WealthBuilder, The Writing Center, Lode Runner CD-ROM Titles Include: The 1995 Grolier Multimedia Encyclopedia, Electronic Arts 3D Atlas, My First, Incredible, Amazing Dictionary, Smithsonian's America, more

190cs Series

8MB/500HD	$2099
8MB upgrade	$329
PB 190 8-bit Color Video	$179
Infrared Upgrade Kit	$79

SPECIALS

P630 8/250/CD/KB Ref	$789
PB 520 4/160 Ref	*$1299
PB 520 4/240	$1599
Apple 2GB 3.5" Int HD	$789
Apple PB 160 MB 2.5" HD	$79
Apple PB 320 MB 2.5" HD	$259
EZQuest PD 4x CD-ROM & 650MB Optical Storage in one external complete	$669
EZQuest MCD 540 & Syquest 270 MB external kit combo	$649
radius PrecisionColor 8XJ	$229
radius 81/110 16/730/Cd	$1999*
radius 81/110 16/2.0GB/CD	$2499*

*Price after $200 mfr mail in rebate

Printers

Apple	
StyleWriter 1200	$269
ColorStyleWriter 2200	$379
ColorStyleWriter 2400	$399
LaserWriter 320PS	$599
LaserWriter 4/600	$829
LaserWriter Select360 PS$	1129
LaserWriter 16/600 PS	$2059
ColorLaserWriter12/600	$5998
Hewlett Packard	
DeskWriter 660 InkJet	$299
DeskWriter 660c InkJet	$429
DeskWriter 340 InkJet Mac	$329
DeskJet 850C InkJet	$629
DeskJet 1600CM/PS	$1985

MEMORY

6100/7100/8100 SIMM	
4MB 60ns	$139
8MB 60ns	$289
16MB 60ns	$499
32MB 60n	$989

7200/7500/8500/9500 DIMM	
8MB DIMM	$279
16MB DIMM	$479
64MB DIMM	$1889
1MB V-RAM	$79
256K L2 Cache	$259

PB5300 SERIES	
4MB UPGRADE	$199
8MB UPGRADE	$329
16MB UPGRADE	$569
32MB UPGRADE	$1159

PB500 SERIES	
4MB UPGRADE	$169
8MB UPGRADE	$279
16MB UPGRADE	$579
32MB UPGRADE	$1089

CUSTOM CONFIGURATION AVAILABLE

GOVERNMENT, UNIVERSITIES, & FORTUNE 1000* COMPANY P.O.s ARE ACCEPTED

BUSINESS LEASING AVAILABLE

Prices reflect cash discounts and subject to change without notice.. * P.Os are subject to credit approval

MEMORY PRODUCTS ARE NEW W/ LIFETIME WARRANTY

32 MB DIMM $879

MacBase™ U.S.A

OVERNIGHT SHIPPING ORDER TODAY GET IT TOMORROW FedEx

(800)951-1230

MasterCard AMERICAN EXPRESS Card VISA DISCOVER

Since 1988
1941 Freeman #B
Signal Hills, CA 90804

INTERNATIONAL(310)498-1230 , FAX(310)498-0032

DEALERS INQUIRY WELCOME. RETURNED PRODUCTS ARE SUBJECT TO A RESTOCKING FEE. PRICES REFLECT C.O.D. ORDERS & SUBJECT TO CHANGE W/O NOTICE . *P.Os ARE SUBJECT TO CREDIT APPROVAL

Mon-Fri 8:00 To 6.00
SAT 10:00 TO 2:00 PST

CIRCLE 443 ON READER SERVICE CARD

Macworld SHOPPER®

"Custom Configuration Specialists"
•Dealers & International sales welcome!
•Best Prices, Service & Delivery.

Infinity Micro

2289 Westwood Bl. LA, CA. 9[illegible] 310•470•9426 Fax 310•470•4956
One stop shopping for all [illegible] ftware & hardware needs!
800 • 589 • 1234
Most Complete Mail order Source!

GCC TECHNOLOGIES DAYSTAR Seagate radius HEWLETT PACKARD RASTEROPS UMAX® Apple QMS

POWERMACS
6100/66 8/350/CD/Demo 1145.
7100/80 8/700/CD 1295.
7100/80 AV 16/700/CD 1795.
8100/100 8/700 2145.
8100/100 16/700/CD 2645.
8100/110 16/2GIG/CD 2895.
7200/75 8/500/CD 1289.
7200/90 16/500/CD 1695.
7500/100 16/1GIG/CD 2595.
8500/120 16/1GIG/CD 3485.
8500/120 16/2GIG/CD 3895.
9500/120 16/1GIG/CD 3295.
9500/132 16/1GIG/CD 3595.
9500/132 16/2GiG/CD 3875.
9500/132 256/4GIG/CD 11,195.

PERFORMA
550 5/160/CD w/ 14" 775.
575 5/160/CD w/14" 995.
578 8/250/CD 1099.
635 5/250/CD w/ 15" 1045.
636 8/250/CD w/14" 849.
637 5/700/CD w/ 15" 1175.
638 8/350/CD w/ 15" 1345.
6115 8/350CD/15" 1245.
6116 8/700/CD/15" 1345.
6200 8/1Gig/CD 1695.
6300 16/1.2Gig/CD 2545.
5215 8/1Gig/CD 1739.
All Performa's include fax mdm.
PowerMac 6100/66 8/350CD $ 1145.
Limited quantities available!

POWERBOOKS
150 4/120 895.
520 4/240 1065.
520C 4/240 1695
540C 4/320 CALL
190 8/500 1595.
190CS 8/500 1875.
5300 8/500 Mono 1695.
5300cs 8/500 2195.
5300cs 16/750 2775.
5300c 8/500 3085.
5300c 16/750 3445.
5300CE 32/1Gig $ 5395.
POWERBOOK 520 4/240 $ 1065.
POWERBOOK 150 4/240 $ 895.

VIDEO CARDS
PrecisionColor 8/1600PCI 459.
Thunder/30-1152 795.
Thunder/30-1600 1145.
Thunder Color/30-1152 1639.
Thunder Color/30-1600 1885.
Thunder 24 GT 895.
VideoVision Studio 2.0 2495.
VideoVision Studio Array 4695.
TrueVision Targa 2000Pci 3595.
Agfa Arcus II Plus 1895

PRINTERS
Stylewriter 1200 199.
Stylewriter 2400 319.
P.Laserwriter 300 395.
Laserwriter 4/600 769.
Laserwriter 360 1145.
Laserwriter 16/600 2095.
Color Laser 12/600PS 5875.
GCC Elite-XL 808 2795.
GCC Elite-XL 616 CAL:L
PANASONIC $ 295.
Laser,P.S. L.II, 300dpi
Same as Apple LaserWriter. 310

RADIUS MONITORS
PrecisionColor 17 775.
PrecisionColor 21 1475
PrecisionView 17 899.
PressView 17 SR 1899.
Intelllcolor 20e 1595.
SuperMatch21TXL 1695
PressView 21T 1895
PressView 21SR 3095

Adobe Photoshop 3.01 PM $ 299
Aldus $99.
Pagemaker 4.2

CIRCLE 501 ON READER SERVICE CARD

COMPUTER GRAPHIC & NETWORKING
We custom configure and test your system. Specializes in Pre-Press, Publishing, Digital Video product[illegible]
WE BUY • SELL • TRADE Competitive Leasing Rates are Available FREE MOUSE PAD WITH EVERY ORDER

PowerMacs
9500 132/ 80-4.G8 $ 5735
9500 132/ 32-1G8 3870
9500 120/48-1GB 3850
8500 80-4G8 4780
8500 16-1G8-CD 3350
8500 132Mhz 48-4.G8 CALL
7500 32-1G 2890
7500 48-4G8-CD 4580
7500 120 MHZ CALL
7200 90/16-500 1695
Performa CaLL
Call for config. not listed

Powerbooks
5300c 32-750 $ 4175
5300c 16-500 3250
5300cs 36-750 CALL
5300cs 16/1GB 3190
520c 4-240 CALL
Call for l90 5300CE

Demo Powerbooks
Duo 230 / 250 650/990
540 / 520 /540C CALL
180 8-160 1190
145 - 170 -150-165c CALL
170 4-160 850

Upgrades
Same day Upgrade No down Time!!
Q840/800 to 8500/120 1599
8100 to 9500/132Mhz 1790
8100 to 8500/120Mhz 1399
Quadra 950 to 9150 979
Q 610 / 660 to 6100 550
7100/ 80 to 7500/ 100 999
650 to 7200 /90 790
PB 500 to 5300 CALL
All PowerBook Upgrade CALL
Si-LCII-Q700 to Power PC CALL
Call forUpgrades not listed

Parts
L.B.Q840/950/800 Call/490
L.8.7100/66/80 750/950
Si Ci Vx 125/185/195
Floppy 1.44/ Mouse 119/49
Call for Power Supplies & more

Demo Macs
FX / Si / Ci 450/250/350
9500 120Mhz16-1GB 2980
8500 132/120 3650/3175
Q 800/ 840/950 1090/1290
6100/7100 895/995
Qcts 610/660 AV 520/Call

<< Lease >>
8500 /120 48-1GB-CD $111
8500 /132 64-4GB-CD 144
7500 /100 32-1GB-CD $ 77
9500 /132 80-1gb-CD 130
5300C 32-750 $124
7200 /90 16-500-CD 49
17" M'tor & Ext KB $ 21
Call us with your list of Equip !!
Same Day & Affordable Leasing.

Performa
Call for latest prices.
6300/6220/6115/640/5215

Memory
30 Pin 1/ 4/16 22/108/360
72 Pin 4/ 8/16/32 109/198/380
Dimms 8/16/32 249/447/849
2X - 4X CD 135 / 310
3.5" 2GB. / 4GB 620 /920

We Pay Top $$$ For Your Mac & Mem.
TRADE YOUR MAC FOR NEW ONE
<< Prices are subject to Change.>>

TEL: 310-441-4771 10922 Pico Blvd. Los Angeles, CA 90064 Fax: 310-441-4770

CIRCLE 432 ON READER SERVICE CARD

POWER MAC
9500/132mhz
80-2GIG CD $5399
16-2GIG CD $3649
9500/120mhz
48-1GIG CD $3999
16-1GIG CD $3149
8500/120
16-1G CD 3649
48-2G CD 4999
144-4G CD Call
1MB V-RAM $69
256K CACHE $199
7500/100
16-1G CD 2629
48-1G CD 3479
16-500 2399
7200/90
16-500 CD 1699
24-1G CD 2149
7200/75
8-500 CD 1319
16-500 CD 1529
8100/100 CALL
7100/80 CALL
600E EXT $299
SAVE ON ANY CONFIGURATION
QUADRA 650 / 630 / 840 / 950 CALL

MEMORY
64MB DIM 1699
32MB DIM 819
16MB DIM 419
8MB DIM 219
32MB 72PIN 819
16MB 72PIN 419
08MB 72PIN 219
04MB 72PIN 115
For Powerbook Call

HARD DRIVES
QUANTUM FIVE YEAR WARRANTY
Quantum 4g 949
Quantum 2g 669
Quantum 1g 255
500mb f/p.b 275
Iomega ZIP DRIVE $189
EZ DR $215

MAC CITY COMPUTERS
CASH PRICES
QUALITY SERVICE AND VALUE SINCE 1987
NO SALES TAX OUTSIDE CALIFORNIA
ALL PRICES REFLECT C.O.D CASH DISCOUNT
Prices are subject to change without notice
Tel: (818) 505-8991-Fax:(818) 505-8992
SALES (800)505-8991
VISA MasterCard DISCOVER
INTERNATIONAL ORDERS C.O.D Welcome
11026 Ventura Blvd STUDIO CITY, CA 91604
WE GUARANTEE QUALITY AND BEST PRICE
WE ARE OPEN TO THE PUBLIC

Monitor
NEC
XV17/XV1[illegible]
RADIUS
Intel 17"
Intel 20e
Apple 15" 399
Apple 17" Multi 729
Apple 20T Multi 1899
SONY
Sony 17Se2 1089
Sony 17sf 2 859
Sony 15sf 2 479
Sony 20SE1 1899
Printers
Apple
Pro 4/600 779
Pro 16/600 Call
Select 360 1150
Color 2400C 339
Styl 2200 349
HP 5MP 989
HP 1200 cps Call
HP 850c Call

Powerbook
$35
5300 8-500 1799
5300CS 8-500 2299
5300CS 16-750 2779
5300C 8-500 3049
5300C 16-750 3599
5300CE 32-1G 5299
190CS 8-500 1899
540C/520C/520 CALL
TELEPORT 28.8 FAX $189
WORLDWIDE
FedEx &UPS NEXT DAY AND SAME DAY SHIPP

Performa
COMPLETE SYSTEMS
6300 16-1G CD 2549
6220 16-1G CD 1839
6200 8-1G CD 1739
5215 8-1G CD 1799
5200 8-800 CD 1789
6116 8-700 CD 1550
638 8-350 CD 1399
640 12-500 DOS 1449
TRADE YOUR OLD MAC FOR A NEW MAC
Visit Our Web Site: http://www.maccity.com/bestprice

CIRCLE 442 ON READER SERVICE CARD

DATA MICRO COMPUTER INC.
800•345•1234
TEL (310) 398•3300
FAX (310) 391•2488
DEALERS & INTERNATIONAL SALES WELCOME!

Special Deals
Centris 650 8/500 975.
Quadra 950 8/0 1699.
Supermac 1702 17" 675.
Sanyo 4X CD-Rom 139.
24 Bit Video Card 299.

POWERMAC
6100/66 8/500/CD 1345.
7100/80 8/700/CD 1450.
7100/80 AV/16/700CD 1775.
7200/75 8/500/CD 1295.
7200/90 16/500/CD 1726.
7500/100 16/500/CD 2450.
7500/100 16/1Gig/CD 2645.
8100/100 8/700 2150.
8100/100 16/700/CD 2585.
8100/110 16/2Gig/CD 2995.
8500/120 16/1Gig/CD 3595.
8500/120 32/4Gig/CD 4695.
9500/120 16/1Gig/CD 3450.
9500/120 32/4Gig/CD 4550.
9500/132 16/2Gig/CD 3750.
9500/132 32/4Gig/CD 4775.

PERFORMAS
476 4/230 595.
550 5/160CD 845.
575 5/250CD 995.
578 8/320CD 1175.
LC 580 8/500 820.
630 4/250,KB 655.
635 4/250CD 775.
637 8/350CD,15" 1297.
638 TV/8/350CD,15" 1352.
640Dos 12/500CD 1595.
6110 8/250CD,14" 1350.
6116 8/700CD 1495.
5215 16/1 GigCD 1795.
6200 16/1GigCD 1825.
6220 TV16/1GigCD 2199.
6300 16/1Gig/CD 2425.

POWERBOOKS
5300CE 32/1Gig 5595.
5300C 16/750 3650.
5300C 8/500 3095.
5300CS 16/750 3050.
5300CS 8/500 2337.
5300 Mon 8/500 1695.
190CS 8/500 1945.
190 8/500 1695.
540C 4/320 2795.
540C 12/320/M 3295.
520C 4/160 1495.
520C 4/240 1595.
520 4/160 1095.
520 4/240 1095.
Full Dock 395.
Platinum Pro 495.

PRINTERS & MONOTORS
LaseWriter Pro 810 CALL
LaserWriter 16/600 2095.
L.W. Select 360 1145.
L.W. Select 300 495.
Personal 320 595.
Personal 300 395.
Panasonic 300dpi 345.
Radius 15" GS 385.
Radius Pivot 15" GS 474.
Radius Pivot 15" Clr 695.
Radius 20" GS 675.
Radius 21" GS 777.
Radius 17" 745.
Radius 20" 1550.
Radius Intellicolor20E 1595.
Pressview 21T 1995.

CIRCLE 464 ON READER SERVICE CARD

ASK ABOUT OUR BUSINESS LEASING

iCN

INNOVATIVE COMPUTER & NETWORKING

UPGRADE YOUR PB500 TO POWERMAC 603 PROCESSOR

$789 + $40 LABOR

POWERMACS

9500/132 16/2G/CD	$3569
9500/132 16/1G/CD w/ATI card	$3350
9500/120 16/1G/CD	$3190
8500/120 16/1G/CD	$3389
7500/100 16/1G/CD	$2395
7200/90 8/500/CD	$1589
7200/75 8/500/CD	$1229
8100 Custom Configurations	Call
7100 Custom Configurations	Call
6100/66-DOS 16/500/CD	$1797

PERIPHERALS

SyQuest EZ135	$239
NEC 6X-Speed CD-ROM Ext.	$497
SupraFax/Mod Express 28.8	$187
BEST DATA 28.8 w/Voic Mail	$197
AGFA StudioScan IIsi	$847
AGFA Arcus II w/Full Photo.	$1897
PaperPort Vx By Visioneer	$357

DEMOS

8500/120 16/1G/CD	$3089
7200/75 8/500/CD	$1089
Q950 8/500/CD	$1345
Q800 8/230/CD	$1289
Q840AV 8/230/CD	$1589
Q650 8/230/CD	$1390
Q610	Call
IIci 4/80	$395
IIfx 4/80	$525

9500/132 16/1GB/CD
APPLE 1705 + KYBRD
$4249

Performa 575 Refurbished
5/250/CD A
Built-in 14" Monitor & Kybrd
$939

Performa 550 Refurbished
5/160/CD
Built-in 14" Monitor & Kybrd
$649

Performa 400 Refurbished
4/80
$299

ATTO

FAST/WIDE SCSI-2,3 ACCELERATORS UP TO 40MB/SEC

Express PCI SC	$319
Express PCI MC	$749
SiliconExpress IV	$849
SiliconExpress II	$519

UPGRADES

With Oringial Apple Logic Board & Parts

Quadra 950 ,900 to Workgroup 9150/120	$1550
Quadra800*,840AV & 8100s to 8500/120/132	$1550-1979
C610, Quadra610 or 660 to 6100/60	$695
Quadra650, C650 to 7100/80	$995
Powermac 8100/80 to 8100/100/110	Call

ORIGINAL APPLE PARTS

9500 Logic Board	$1239
8500 Logic Board	$795
120Mhz 604 Processor Card	$795
1.44 Floppy Drive	$125
8500 Power Supply	$195
AV Card	$430
CD-Rom Drive (300-2x-Speed)	$95

Prices Subject to Change Without Notice • Call for Latest Prices
All Prices reflect 3% Cash Discount

POWERBOOKS

5300c/100Mhz 16/750	$3340
5300cs/100Mhz 8/500	$2139
5300/100Mhz 8/500	$1425
190cs 8/500	$1790
150 8/240	$925
540c 4/320-R	$2395
520c 4/240	$1697
520 4/160-R	$995
DUO280c 12/320/M	Call

PERFORMAS

638 8/350/CD/15"Mon/Mod/KB	$1329
6116 8/700/CD/Mod/14"Mon/KB	$1467
5215 8/1G/CD/Mod/15"Mon/KB	$1729
6200 8/1G/CD/Mod/15"Mon/KB	$1625
6220 16/1G/CD/Mod/TV-Vi/KB	$1789
6300 16/1G/CD/Mod/15"Mon/KB	$2256

MONITORS

APPLE 15" Multiscan	$349
SONY 15SF2	$510
NEC XV15	$490
APPLE 1705	$729
APPLE 1710AV	$925
SONY 17SF2	$899
NEC XV17	$799
SONY 20SF2	$1799
NEC XE20	$1699

PRINTERS

APPLE LW 4/600	$795
APPLE LW PRO 810-R	$1839
APPLE LW 16/600	Call
APPLE Color Printer 12/600	$5890
APPLE LW 360	$1089
APPLE StyleWriter 2400	$299
APPLE StyleWriter 2200	Call
APPLE StyleWriter 1200	$189
APPLE StyleWriter PRO-R	$220
HP PRINTERS	CALL

GCC PRINTERS

XL 808 800dpi/8ppm/11x17	$2829
XL 616 600dpi/16ppm/11x17	$2439
XL 1208 1200dpi/8ppm/11x17	$3819

(310)445-6600

FAX: (310)445-6611

FAX TOLL FREE FROM JAPAN: 00-31-114211

2045-B South Barrington Ave., LA, CA 90025

CIRCLE 439 ON READER SERVICE CARD

MacMarket

1-800-905-3034

Fax: 818-708-6399

WE HAVE ALL THE PARTS FOR YOU TO BUILD YOUR OWN COMPLETE SYSTEM

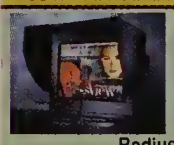
Catalog Reseller

Great Buys

PINNACLE MICRO
Optical Apex 4.6GB #E7236
As low as $1599
Optical Tahoe 230 ..... $499 #E7228
RCD 5040 ..... $1189 #E7248

Adaptive Solutions. Adobe Charged
PowerShop PCI ..... $1797 #V9244
ExpressPCI-MC $729 #A4519 ATTO
MultiChannel
ExressStripe RAID L0 ..... $339 #A4517
ExpressPCI–SC PCI ..... $293 #A4518
SiliconExpressIVNuBus ..... $799 #A4515

AGFA
The complete picture.
Studio Scan IISI ..... $839 #S8477
Arcus II ..... $1799 #S8482
DuoScan ..... $4499 #S8477



radius
Radius PCI Cards
ThunderColor 30/1600 PCI ..... $1899 #V9102
ThunderColor 30/1152 PCI ..... $1499 #V9105
Thunder 30/1600 PCI ..... $1159 #V9108
Radius Monitors
Precision View 17 ..... $949 #M6606
PrecisionColor17 ..... $999 #M6603
Press View 17SR ..... $1909 #M6600
Press View 21SR ..... $3049 #M6609
PrecisionView 21 ..... $2159 #M6614
MultiView 21 ..... $1739 #M6611

ATI XClaim GA PCI graphic board
Graphic accelerator for PowerMac, supports resolutions up to 1600x1200
w/2MB VRAM ..... $349 #V9165
w/4MB VRAM ..... $459 #V9162
2 VRAM Upgrade ..... $219 #V9159

EA PCI Video Board & Monitor RESEARCH
EAsycolor 1600/16 PCI Card ..... $569 #V9177
EA 21" Monitor & Calibrator ..... $2369 #M6646
MPEG(PCI) ..... $179 #V4533

All Prices reflect a **Cash** Discount. Any other method is 2% to 4% higher. Prices are subject to change without notice. All Returns are subject to restocking fee, must be in original package, condition & needs an RMA#. No Refunds on Labor or Freight Charges. We accept Visa, Mastercard, Discover & American Express. P.O.s are accepted from U.S. Gov't, Schools & Corporations. Not responsible for typographical errors.

International Call: 818•708•6388
Customer Service & Technical Support Call: 818•708•6388
Fax: 818•708•6399
Address: 6924 CANBY AVE UNIT#104
RESEDA CA. 91335
Hours: Mon-Fri, 8AM to 6PM (Pacific)

Macintosh Prices Slashed even more

Get your PowerBook 500 PowerPC UpGrades Here at MacMarket

PowerPC PowerBook
5300 Series 603e RISC

5300cs	100MHz	8/500	$2249	#A1130
5300cs	100MHz	16/750	$2799	#A1133
5300c	100MHz	8/500	$3169	#A1121
5300c	100MHz	16/750	$3599	#A1118
5300ce	117MHz	32/1GB	$5399	#A1115
Duo 2300c	100MHz	8/750	$3329	#A1106
Duo 2300c	100MHz	20/1GB/Express Modem	$4279	#A1107

PowerBooks W/ Motorola 68LC040
190 66/33MHz 4MB RAM/500MBHD ..... $1589 #A1112
190cs 66/33MHz 8MB RAM/500MBHD ..... $1939 #A1109

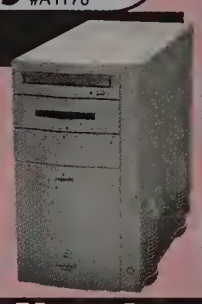
Call For Best Prices on PowerBooks 150, 520 & 520c

PowerMac 7500
100MHz • 601 RISC • PCI

16MB of RAM
1000MB Hard Drive
Quad-Speed CD600i
$2699 #A1181

16MB of RAM
500MB Hard Drive
Quad-Speed CD600i
$2549 #A1178

PowerMac 8500
120MHz • 604 RISC • PCI



16MB of RAM
1000MB Hard Drive
Quad-Speed CD600i
$3695 #A1314

16MB of RAM
2000MB Hard Drive
Quad-Speed CD600i
$4099 #A1317

PowerMac 7200
601 RISC • PCI •

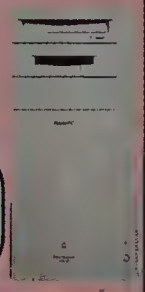
90MHz
16MB of RAM
500MB Hard Drive
Quad-Speed CD600i
$1743 #A1187

75MHz
8MB of RAM
500MB Hard Drive
Quad-Speed CD600i
$1365 #A1184

PowerMac 9500
132MHz • 604 RISC • PCI

16MB of RAM
2000MB Hard Drive
Quad-Speed CD600i
$3699 #A1214

16MB of RAM
1000MB Hard Drive
Quad-Speed CD600i
ATI PCI 2MB Graphics Card
$3599 #A1229



PERFORMA

Performa 5215CD•75MHz•PowerPC•
603 w/FPU 8MB RAM • 1GB HD • 4X Apple CD • Apple 15" Monitor • Apple Design Keyboard & Mouse • 1.4MB SuperDrive • 14.4Fax/Modem w/ Speaker Phone & Answering Machine $1799 #A1191

Performa 6200CD•75MHz•PowerPC•
603 w/FPU 8MB RAM • 1GB HD • 4X Apple CD • Apple 15" Monitor • Apple Design Keyboard & Mouse • 1.4MB SuperDrive • 14.4Fax/Modem w/ Speaker Phone & Answering Machine $1798 #A1190

Performa 6300CD•100MHz•PowerPC•
603 w/FPU 16MB RAM • 1GB HD • 4X Apple CD • Apple 15" Monitor • Apple Extended Keyboard & Mouse • 1.4MB SuperDrive 28.8 Fax/Modem w/ Speaker Phone & Answering Machine $2555 #A1193

Apple Printers — New Lower Prices

Personal LaserWriter 320 w/toner	$569	#P3244
LaserWriter 16/600PS w/toner	$2395	#P3250
Color LaserWriter12/600PS w/toner	$6500	#P3405
LaserWriter 4/600PS w/toner	$749	#P3256
Color StyleWriter 2400 w/cartridge	$369	#P3259
Color StyleWriter 2200 w/cartridge	$399	#P3282
StyleWriter 1200 w/cartridge	$239	#P3265

Apple Monitors

Apple Multple Scan 15"	$399	#M6558
Apple Multple Scan 20"	$1899	#M6564
Apple Vision 1710AV	$1059	#M6567
Apple MultipleScan 14"	$339	#M6570
Apple Multiple Scan 1705	$759	#M6638
Apple Multiple Scan 1710	$929	#M6500

Apple Keyboards

Apple Design KeyBoard	$84	#K8100
Apple Extended II Keyboard	$159	#K8103

WACOM
ARTZ II 12x12 Tablets $399 #T9506
ARTZ II 6 X 8 .... $299 #T9500

Hard Drives
All drives are tested and come with the latest FWB HDT. All drives come with **full factory warranty.** We carry both Internal and External. External Drives come with SCSI Cable & Terminator. These are Internals. **External** add $69.00

Quantum INTERNALS

1080MB FireBall(12ms)	$275	#H1111
2.2GB Capella(8.5ms)	$679	#H1308
4.2GB GrandPrix(8.6ms)	$959	#H1122

Seagate INTERNAL
BARACUDA SERIES—7200 RPM

2.5GB	$799	#H1243
2.5GB-Wide	$859	#H1246
4.2GB	$1222	#H1249
4.2GB-Wide	$1274	#H1252
Elite 9 SERIES		
9GB	$2095	#H1255

Polaroid Slide Scanner
SprintScan 35 Slide Scanner
$1469 #S8545

SONY
MultiScan 15SF2
$499 #M6438

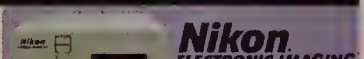
Sony 17 SF2	$869	#M6580
Sony 20 SF2	$1769	#M6574

NEC

XV17	$739	#M6588
XE17	$999	#M6591
XP17	$1042	#M6582
XE21	$1687	#M6594
XP21	$1956	#M6585

PageMaker 6.0
$549 #S1027
Adobe
We Sell Software

Nikon ELECTRONIC IMAGING



CoolPrint Slide Printer	$1559	#P3271
SuperCoolScan External	$1949	#S8503

SupraFAXModem

SupraExpress 14.4 Plus	$99	#F8106
Fax/Modem 28.8 v.34	$229	#F8109
SupraExpress 28.8 Plus	$154	#F8107

EPSON

Stylus Color II InkJet Printer	$399	#P3294
Stylus Color ProXL Printer	$1669	#P3291
ES-1200C Pro Scanner	$1129	#P8533
Transparency unit	$628	#P8537

HEWLETT PACKARD

660c 600X300, 3PPM	$399	#P3223
5MP 600dpi, 6PPM	$999	#P3232
4MV 600dpi, 11x17Tray	$2649	#P3235
DeskJet 1600CM	$1921	#P3410

SyQuest Each with a Cartridge

5.25 200 MB Removables	$469	#R6115
EZ135 135MB	$229	#R6124
SyJet 1.3GB	CALL	#R6125

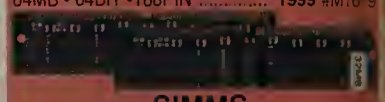
CIRCLE 420 ON READER SERVICE CARD

MACMARKET IS MORE THAN JUST ANOTHER MACINTOSH DEALER, TAKE A LOOK AT OUR GREAT HARDWARE SELECTION & OUR LOW LOW PRICES.

Compare & Save

Hot Prices on DIMMS

8MB • 64BIT • 168PIN	$229	#M15[illegible]
16MB •64BIT •168PIN	$449	#M1[illegible]
32MB • 64BIT •168PIN	$899	#M1[illegible]
64MB • 64BIT •168PIN	$1999	#M16[illegible]



SIMMS

4MB • 32BIT • 72PIN 60NS	$154	#M1[illegible]
8MB • 32BIT • 72PIN 60NS	$229	#M15[illegible]
16MB • 32BIT • 72PIN 60NS	$459	#M1595
32MB • 32BIT • 72PIN 60NS	$929	#M16[illegible]4

PowerBook Memory

	5300		190	
4MB	#M1386	$150	#M1702	$150
8MB	#M1387	$287	#M1704	$287
12MB	#M1388	$455	#M1706	$455
16MB	#M1390	$577	#M1708	$577
32MB	#M1393	$1144		

Newer TECHNOLOGY

8MB, 64BIT 70NS DIMMS	$279	#M1448
16MB, 64BIT 70NS DIMMS	$529	#M145[illegible]
32MB, 64BIT 70NS DIMMS	$1039	#M1454
64MB, 64BIT 70NS DIMMS	$2049	#M145[illegible]

PowerBook 500 Upgrades /603e/117MHz

500 PPC (CPU Only)	$549	#4540
500 PPC w/4MB RAM	$719	#4542
500 PPC w/8MB RAM	$889	#4544

TRUEVISION
Targa 2000 ..... $3999 #V9200

FWB incorporated

PCI Technology JackHammer Accelerator $299 #A4417

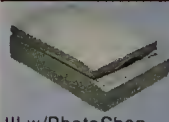
DAYSTAR DIGITAL
100MHz PowerPro 601 $1159 #A4500
Quadra 610, 650, 700, 800, 950, Centris 610, 650 (610 needs an adapter)
100MHz **Turbo 601** ..... $1139 #A4509
IICi, IISi, IIVx, IIVi and Perfoma 600
100MHz **PowerCard 601** ..... $919 #A4498
Perfoma, Quadra, LC475, LC575, 605, 630

GLOBAL VILLAGE COMMUNICATION

PowerPort PC Cards
Platinum 28.8 ..... $319 #F8150
Platinum Pro 28.8,10Base-T ..... $479 #F8147
PowerPort Mercury for PB 500s ..... $319 #M8114
TelePort Platinum ..... $199 #M8120
TelePort Gold II ..... $109 #M8123

Portrait Display Labs
The way all monitors should be!

Portrait Display Pivot 1700 $929 #M6597



MICROTEK Better Images Through Innovation
ScanMaker Series

III w/PhotoShop	$1929	#S8444
Trans. Adapt. for III	$129	#S8469
IIHR w/PhotoShop	$719	#S8447
IIHR w/Colorit, OmniPageDirect	$547	#S8450
ScanMaker E3	$359	#S8460

INTERGRATED MICRO SOLUTIONS
Twin Turbo 128M (4MB) $529 #V9240

Vista S8 Pro+ $763 #S8509

UMAX *The Magic of Color*

PowerLook Pro +	$1829	#S8519
PowerLook II Pro M	$2259	#S8522
PowerLook II Pro2	$2699	#S8520
Vista S6 LE+	$569	#S8506
Vista S12 LE	$729	#S8564
Vista S8 LE+	$659	#S8511
Transparency Adapter for Vista	$389	#S8527

Add a second keyboard, monitor and mouse up to 250 feet away from your Macintosh!

- Compatible with most Macintosh computers with detachable monitors
- Supports Macintosh Hi-Res video
- Macintosh mouse support standard at both local and remote workstations
- Switch selectable privacy mode
- No software required for operation

MAC COMPANION™

Cybex Corporation
4912 Research Drive Huntsville Al 35805 USA
(205) 430-4000 (205) 430-4030 fax

CYBEX™

Macintosh and Mac are trademarks of Apple Computer, Inc. Cybex and Companion are trademarks of Cybex Corporation.

Dealer Program Available — Made in USA

CIRCLE 433 ON READER SERVICE CARD

MacALLY™ Peripherals

We work hard for your Macintosh

Call us for the Dealers near you

Please call today: 1•800•644•1132

mgi

Manufactured by:
MACE GROUP INC.
2550 Corporate Place #C 101, Monterey Park, CA 91754
All trademarks or registered trademarks are the property of their respective owners

CIRCLE 418 ON READER SERVICE CARD

STOP SCSI Problems

SCSIVue™ Active Terminator

From: $59

Benefits:
Improves SCSI Bus Performance
Less Errors; More Reliable Data Transfer
Diagnoses Problems • Analyzes Signal Quality
Features:
Active Regulation • Fast 50 & Fast Wide 68
Status Indicators • Gold Contacts

Optional Remote Display

SCSIVue™ Gold Diagnostic Cables

From: $39

Benefits:
• No Loss Of Important Data
• Faster Performance
• Test Cable Integrity
Features:
• Diagnostic Indicators • Large Ferrite Filters
• Triple Shielding (Unique Design)
• Double Gold 20u" Plated Connectors
• Extra Heavy 26 Gauge Wire • 40 Styles in Stock

SCSI 2+3 COMPATIBLE

SCSIVue™ Teflon Internal Cables

From: $39

Benefits:
Less Errors, Ultimate Performance
Silver Wire Improves Signal Quality
Features:
Perfect 90 Ohm Impedance Match • Custom in 1 Day
Triple Pronged Connector With Gold contacts Silver Wire

SCSIVue™ 2-1 Active SCSI Switch

Benefits:
• Share Devices Between 2 Computers
• Up to 14 Devices to 1 Computer
Features:
• 2-1 Active Digital Switch/Repeater
• Regenerates SCSI Signal for Long Runs

Granite — The SCSI Solution Company
Ph: 510-471-6442 Fax 510-471-6267
D•I•G•I•T•A•L 3101 Whipple Rd. Union City, CA. 94587

CIRCLE 408 ON READER SERVICE CARD

SHOPPERS MARKET

"The Intelligent Choice!"

We MATCH! We BEAT! We DEAL!

1-800-607-2325
VISA, MASTERCARD, AMEX ACCEPTED.
GOVERNMENT, UNIVERSITY, & CORPORATE P.O.'s ACCEPTED!
FAX (310)842-8130
10875 Washington Blvd., Culver City, CA 90232
SALES (310) 842-3700 FAX (310) 842-8130
ALL PRICES ARE CASH DISCOUNTED AND ARE SUBJECT TO CHANGE WITHOUT NOTICE. CALL FOR RECENT PRICING

POWERMAC

7200/75	8/500 CD	1199
7200/75	16/500 CD	1429
7200/75	16/700 CD	1499
7200/90	8/500 CD	1399
7200/90	16/700 CD	1699
7200/90	16/1 GIG CD	1849
7500/100	16/700 CD	2419
7500/100	16/1 GIG CD	2499
7500/100	32/2 GIG CD	3299
8500/120	16/1 GIG CD	3399
8500/120	80/4 GIG CD	6049
9500/120	16/1 GIG CD	3299
9500/120	32/4 GIG CD	4599
9500/132	16/1 GIG CD	3649
9500/132	80/4 GIG CD	5949
6100/66	8/500 CD	1299
7100/80	8/700 CD	1399
7100/80AV	16/700 CD	1799
8100/100	8/700	2099
8100/100AV	16/1 GIG CD	2599
8100/110	16/2 GIG CD	2799

PERFORMA

631	8/500 CD	1319
638 CD	8/350 CD	1349
6116	8/500 CD	1399
640 DOS	12/500 DOS	1399
5215	8/1 GIG CD	1699
6200	8/1 GIG CD	1649
6205	8/1 GIG CD	1849
6220	16/1 GIG TV	1799
6300	16/1.2 GIG	2499

POWERBOOKS

5300CE	117 Mhz 32/1.1gig	5199
5300C	100 Mhz 32/750	3899
5300C	100 Mhz16/750	3349
5300C	100 Mhz 8/500	2949
5300CS	100 Mhz 8/500	2099
5300CS	100 Mhz16/750	2699
5300	100 Mhz 8/500	1499
DUO 2300C	100 MHZ 8/750	3199
DUO 280C	4/320	2499
DUO 280	4/ 240	1499
190	4/500	1429
190CS	8/500	1849
150	4/240	849
150	8/240	949
520	4/240	1099
520C	4/240	1549
540C	4/320	CALL
4 MB FOR PB 150 & 500 'S		99

VIDEO CARDS

VIDEO VISION 2.51	2599
SPIGET POWER AV	699
PRECISION PRO 24 X	599
THUNDER COLOR 30/1600	1999
THUNDER COLOR 30/1152	1599
THU 30/1600-1152	1099/759
PRECISION COLOR 8/1600	449
IMS TWIN TURBO 128	549
TARGA 2000 PCI	3699
DIAMOND MAC MULIMEDIA	
YARC SYSTEMS SCREAMER 2D/3D	

PRINTERS

STYLEWRITER 1200	199
STYLEWRITER COLOR 2400	299
LASER 4/600, 360	749/1099
Apple 16-600/PS	2099
Apple 12/600PS Color	5999
HP 5MP/850	989/519
DESKWRITER600/ 660C	289/389
HP 1600 CM	1899
NIKON COOL PRINT	1449

SCANNERS

HP 4C	929
EPSON ES 1200C PRO	1095
EPSON ES 1000c	679
AGFA ARCUS II	1869
AGFA STUDIOSCAN II SI	859
NIKON COOLSCAN	CALL
NIKON AX 1200	1249
MICROTEK III	1899
UMAX VISTA S8 LE	649

MONITORS

APPLE 15" /17"	379/709
APPLE 1710/20"	909/1749
SONY 15/17 SF	499/869
RADIUS PRECISION VIEW 17	799
RADIUS MULTIVIEW 21	1699
RADIU PRECISIONVIEW 21	1999
RADIUS PRSSVIEW 21 SR	3099
RADIUS PRESSVIEW 17 SR	1929
PIVOT 1700 .26 DPI	979

DEALERS CALL FOR SPECIAL PRICING!

CIRCLE 435 ON READER SERVICE CARD

Need Help Fast?

Call for Typesetters, Graphic Artists, Programmers, Network Installation, On-Site Memory/Mac Installs & More

(800) WE'RE MAC

Washington DC • 202.338.4163 • Baltimore •
New York City • 212.924.3979
Philadelphia • 215.972.0105
Kansas City• 913.338.4386
St. Louis • 314.862.6227

MacSpecialists®
The people to power your Mac!™

CIRCLE 475 ON READER SERVICE CARD

USED COMPUTERS

The Computer Exchange

"We match buyers and sellers of used MACS nationwide."

Classic to PowerPC

Call For More Info

800-304-4639

404-898-0700 www.compexch.com
205 Armour Dr. NE, Atlanta, GA 30324

CIRCLE 460 ON READER SERVICE CARD

Ad # 496 b

Apple Quantity Deals

9500/132 16-2GB-CD Qty.	$3195
9500/132 0-0 Qty.	$2595
9500/120 16-1GB-CD Qty.	$2795
9500/120 0-0 Qty.	$2195
8500/120 16-2GB CD Qty.	$3395
PowerBook 150 4-240MB Qty.	$765
PowerBook 520 4-240MB Qty.	$945
PowerBook 520C/540C Qty.	CALL
117MHz PPC Prcssr. Upgrd. f/500's	$495
PowerBook 5300c 16-750MB Qty.	$3095
PowerBook 5300ce 32-1.1GB Qty.	$4595
PowerBook 5300cs 8-500MB Qty.	$1995
Quadra 950 8-500MB Qty.	$1495
Performa 630 8-500-CD Qty.	$795
Performa 5215/75 8-1GB-CD Qty.	$1475
Apple AV /Video/DOS Card	$395/275/325
Apple CD 300e/600e	$169/299
Apple 15" / 17" 1705 / 20"	$349/665/1645
Apple LaserWriter Select 360	$995
Apple StyleWriter 1200/2400	$175/289

WACOM Graphics Tablets

ArtPad II 4x5	$129
ArtZ II 6x8	$295
ArtZ II 12x12	$399
ArtZ II 12x18	$649

Sales (818)787-3282
Export " 780-9457

MasterCard VISA

All Prices Are Based on C.O.D. Order & Subject To Change!

Trade in your old Mac for a new Power Mac
Exchange any old PowerBook to new 5300 series

WE Distribute full product line of:
TOSHIBA COMPAQ hp IBM
Call for product & price list

Upgrade Your CPU

Quadra 950, 900 to Workgroup 9150/120MHz	$1750
Quadra 800+, 840AV & 8100s to 8500/120MHz	$1450
Quadra 800+, or 840AV to 8100/100/110MHz	$990/1200
C650, & Quadra 650 to 7100/80MHz	$795
C610, Quadra 610 or 660 to 6100/66MHz	CALL
Power Mac 8100/80 to 9500/120MHz	$1595
Power Mac 8100/100 to 9500/132MHz	$1345

+ Add $100 to the upgrade price

COMPU.D International, Inc.
1-800-929-9333

Software Specials

MS Office 4.2.1	$395	Photoshop 3.04	$469
MS Excel 5.0	$195	Illustrator 5.0	$295
MS Word 6.0.1	$199	PageMaker 6.0	$395
Wordperfect 3.1	$225	Freehand 5.0	$295
SoftWindows	$249	QuarkXpress 3.3	$645

HARD DRIVES Specials Bundled w/Drive 7 Software

Apple 2.5" 160/240MB Qty. 9+	$69/99
Quantom FireBall 1.2 GB SCSI INT.	$29[illegible]
Quantom Atlas 4.3GB SCSI EXT	$969
Toshiba PowerBook 540MB	$19[illegible]

Seagate DRIVES

2.4GB Barracuda ST12550W Wide Int./Ext.	$595/74[illegible]
4.3GB Barracuda ST15150N/Wide ST15150W	$999/119[illegible]
9.0GB Elite ST410800N/External	$1799/19[illegible]

Removable Storage

SyQuest 200/270 Ext. w/1 cartridge	$449/449
Maxoptics Tahiti II 1.3GB Optical Int.	$599
Pinnacle Micro Apex 4.6GB Optical Int.	$1599

UMAX® Scanners

UC630/840	$310/399
UC1260	$650
VistaS6/S12	$449/799
Gemini	$1399
PowerLook II Pro	$2699

Internet Address:
74673.1503@COMPUSERVE.COM
FAX (818)787-5555/FAX Back 787-4548

CIRCLE 434 ON READER SERVICE CARD

WORLD MICRO 1-800-580-0177

Powermacs

7200/75 8/500CD	1450..
7200/90 8/500 CD	1596.
7200/90 16/500CD	1720.
7500/100 16/500CD	2535.
7500/100 16/1GIG CD	2810.
8500/120 16/1GIGCD	3570.
8500/120 16/2GIG CD	4250.
9500/120 16/1GIG CD	3[illegible]
9500/132 16/1GiG CD/V	3750.
9500/132 16/2GiG CD	3850.

Power PC Powerbooks

5300/100 8/500	1690.
5300 CS/100 8/500	2307.
5300 CS/100 16/750	2760.
5300 C / 100 8/500	3130.
5300 C / 100 16/750	3690.
5300 CE/117 32/1.1GIG	5530.

Memory

8Mb Dimm	245.
16Mb Dimm	Call
32Mb Dimm	Call

Performas

631CD 8/500	1498.
638CD 8/350 TV	1299.
640CD DOS 12/500	1999.
5215CD 8/1000	1795.
6116CD 8/700	1680.
6100CD 8/1000	1750..

Powerbooks

Powerbook 190/66 8/500	1750.
Powerbook 190/66CS 8/500	2100.

Printers

Laser 4/600	844.
Laser 16/600 w/kit	1965.
Laser 12/600 w/kit	6100.
Stylewriter 2200	375.
Stylewriter 2400	382.

Displays

14" Multiscan	352.
15" Multiscan	420.
1705 Display	695.
1710 Display	975.
1710 AV	1040.
20" Multiscan	1970.

Free Shipping Anywhere in the U.S.

World Micro Systems Inc. Miami, Fl
(305)716-0177 (305) 716-0277 fax

Prices reflect a 3% discount and can change without notice

CIRCLE 416 ON READER SERVICE CARD

Computer Revelations Inc.
1 800 275-9924 in NY 516 737-0800

POWERMAC

7200/75 8/500CD	$1449
7200/90 8/500CD	CALL
7500/100/16/1GIGCD	$2899
8500/120/16/1GIGCD	CALL
9500/132 16/1GIGCD	CALL

RADIUS / SONY

APPLE 1710AV	$1049
APPLE 1705	$779
17SF	$899
PRECISION 17"	CALL
PREVIEW. 21"	$2199
THUNDER COL.	CALL
CPD 15SF	$485

POWERBOOK

520 4/240	$1199
190 8/500	$1699
190CS 8/500	CALL
5300CS/100	CALL
5300C/100	CALL
5300CE/100	CALL

APPLE INTERNAL SUPERDRIVE $149 w/ Exchange

PERFORMA

PER. 6200	$1999
PER.640CD	$1499
PER. 5215CD	$1899
PER.6300	CALL

PRINTERS

LWRITER 360	$1149
HP 4MP	$799
HP 5MP	$999
HP 1600 C/PS	CALL
HP 4MV	$2899
STYLEWRITER 2400	$399

RADIUS/ NEC

NEC 17XV	$779
NEC 17XP	CALL
NEC 21XE	$1899
PC24XP	$299

SCANNERS

MICRDTEK LE IIHR	$599
MICROTEK IISP	$499
UMAX 1260 PRO	$899
POWERLOOK	$1899
HP SCANJET 4C	$969
HP SCANJET IIIP	$499
EPSON ES 1200	$1199
AFGA ARCUS II	$1949

ALL APPLE PARTS & ACCESSORIES IN STOCK

PowerMac 9500's 8500's, 7500's, 7200's, are here !

COMPAQ hp HEWLETT PACKARD IBM radius Microsoft SUPERMAC FUJITSU AGFA XANTE FWB Tektronix *and many more !*

We carry a full line of All Major Brand Color & BW Printers and Supplies.

CALL US FOR ALL OF YOUR LEASING NEEDS !

COMPUTER

331E DANTE COURT
HOLBROOK NY 11741 FAX 516 737-0923
NEW & USED BOUGHT & SOLD

Ask about our EXTENDED WARRANTY

CIRCLE 474 ON READER SERVICE CARD

Power Macintosh

7200/75	8/500CD	$1379
7200/90	8/500CD	1599
7500/100	16/500CD	2319
7500/100	16/1GBCD	2449
7500/100	32/2GBCD	3199
8500/120	16/1GBCD	3444
8500/120	16/2GBCD	3859
8500/120	48/4GBCD	5099
9500/120	16/1GBCD	CALL
9500/132*	16/1GB/CD	3659
9500/132	16/2GBCD	CALL
6100/66	8/500CD	1299
6100/66	16/500DOS	1859
7100/80	8/700CD	1399
8100/100	16/700/CD	2549
8100/110	16/2GBCD	3099

Performa

6116CD	8/700CD	1469
6200CD	8/800/CD	1699
6215CD	8/1GB/CD	1769
6200CD	8/1GB/CD	1739
6205CD	8/1GB/28.8	1849
6218CD	16/1GBCD	CALL
6220CD	16/1GB/TV	1779
6230CD	16/1GGMPEG	2279
6290CD	16/1.2GB14"	CALL
6300CD	16/1.2GBCD	2299
QUICKTAKE 150		629
APPLE MPEG CARD		249

PowerBook

190/66	8/500	$1569
190CS/66	8/500	1859
5300	16/500	1679
5300CS	8/500	2289
5300CS	16/750	2719
5300C	8/500	3039
5300C	16/750	3499
5300CE	32/1.1	5298

Apple Printers

StylWrtr 1200/2200		246/379
StylWrtr 2400		299
LsrWrtr 4/600PS		799
LsrWrtr 360 W/Tonr		1089
LsrWrtr 16/600 W/Tnr		2099
LsrWrtr 12/600Ps		5899

WorkGroup Srvrs

6150/66	16/700CD	$2069
6150/66	16/700CDAS	2659
8150/110	1GB/CD/AS	4479
8150/110	1GB/INRNT	4079
9150/120	16/2GB/CD	5489
9150/120	16/1GB/AS	7499

ALL WG SERVERS AVAILABLE

FOURB TECHNOLOGIES

ORDER NOW AND SAVE

1-800-946-6221

International: 310.571.0506 Fax: 310.571.0510

iomega ZIP 100 $187

hp 5 MP $969

AppleCD 600e $289

GLOBAL VILLAGE TELEPORT PLATINUM $187

Performa 6300 $2299

NEC XV21" $1679

Apple Monitors

MltplScan 14	329
MltplScan 15	369
MltplScan 1705	799
MltplScan 1710	888
MltplScan 1710AV	988
MltplScan 20	1859

Gov't,Schools,Fortune 500 P.O.'s Welcome.FEDEX Next Day Avail.Visa,MC,AMAX accepted.Prices are Cash Discounted for COD Cash/Cashier Check.

RADIUS

PrecisionClr 17	989
PrecisionView 21	2169
ThunderClr 30/1152	1545
ThunderClr 30/1600	1879
VideoVision Studio	2279

SONY

15SX	15"		428
15SF2	15"		479
17SF2	17"		839
17SE2T	17"	1600X1280	1079
20SF2	20"	1600X1280	1759
GDM-2000CT	NEW!		3099

NEC

NEC XV 15/17	459/739
NEC XV 15+/17+	479/789
XE 17/XP 17	989/1039
XE 21/XP 21	1679/1939

Global Village

Teleport Platinum	187
PwrPort Gold PC	168
PwrPort Platinum PC	319
PwrPort Platinum Pro	459

WACOM

ArtPad II 4X5	129
ArtZ II 6X8	293
ArtZ II 12X12	398
ArtZ II 12X18	685

AGFA

Arcus II	1889
StudioScan	579
StudioScan IIsi	899

Nikon

CoolScan LS-10E	1299
Super CIScan 1000	1999
ScanTouch AX1200	1199

EPSON

ES-1000C	599
ES-1200C PRO-MAC	1149
Stylus Color II	448
Stylus Color	489
Stylus Color Pro	579

hp Hewlett Packard

DeskWriter 660	239
DeskWriter 660C	389
DeskJet 850C Mac	498
DeskJet 1600CM	CALL
LaserJet 5MP	969
LaserJet 4M+	1839
LaserJet 4MV	2689
LaserJet 5SI MX	3729
ScanJet 4C Mac	888

GCC

Elite XL608	2199
Elite XL616	2479
Elite XL808	2789
Elite XL1280 24MB	3889
Elite XL1280 Super Size	5519

CIRCLE 477 ON READER SERVICE CARD

CALL THE MAC EXPERTS!

The Reviews are in!

"Nice Price, Nice Image Quality, Nice Controls, — Nice Monitor!"

"Top Image-Quality Honors!"

PowerMax Trinitron™ Monitors

Model PM14T	25 mm dot pitch- up to 1280x1024	$339!
Model PM15T	25 mm dot pitch- up to 1280x1024	$489!
Model PM17T	25 mm dot pitch- up to 1280x1024	$839!
Model PM17TE+	25 mm dot pitch- up to 1600x1280	$999!
Model PM20T	31 mm dot pitch- up to 1600x1280	$1849!

We can also beat virtually any legitimate price on these lines!
•Agfa •DataProducts •Canon •DEC •Epson •Fargo •GCC •HP •Kodak •Mag •Magnavox •Mitsubishi •NEC •Nikon •Radius •RasterOps •Samsung •Seiko •Sharp •Sony •Umax •Xante

This Month's System Specials:

PowerMac 7200/90 with 16 Mb Ram, CD, 500 Meg Hard Drive, 17" Trinitron, Keyboard. Only $2799, or just $115 per month, complete with three year warranty!

PowerMac 9500/132 with 32 Mb Ram, CD, One Gig Hard Drive, 20" Trinitron, Keyboard. Only $5799, or just $183 per month, complete with three year warranty

Visa • MasterCard • Discover • Amex • COD • Leasing • P.O.s

PowerMax External Hard Drives

Call for pricing on our complete line of quality hard drives!

POWER MAX

Knowledge is Power

800-844-3599

Call today for your free PowerMax Catalog!

Local line: (503) 624-1827 • Fax (503) 624-1635

Find us on the World Wide Web at: HTTP://WWW.Illuminatus.Com/PowerMax

Or send us E-Mail at: PowerMax@Illuminatus.com

Customizable Mac Systems

PowerMac 7200/75 8 Ram/CD	$1299
PowerMac 7200/90 8 Ram/CD	$1467
Performa 640CD Dos Compatible	$1489
Performa 6116 8/700/CD/14"	$1649
PowerMac 7100/80AV w/16 ram/CD	$1789
New! Performa 6290CD 8/Gig/14"/Fax	$Call
Performa 5215 8/Gig/CD/15"	$1888
PowerMac 7500/100 16 Ram/CD	$2498
PowerMac 9500/120 16 Ram/CD	$3348
PowerMac 8500/120 16 Ram/CD	$3498
PowerMac 9500/132 16 Ram/CD	$3588
Powerbook 520C 4/240	$1548
Powerbook 190 8/500	$1698
PowerBook 5300 8/500	$1798
Powerbook 190CS 8/500	$1999
PowerBook 5300CS 8/500	$2448
Powerbook 5300CS 16/750	$2888
PowerBook 5300C 8/500	$3248
PowerBook 5300C 16/750	$3848
PowerBook 5300CE 32 Ram/Gig	$5848

•No one stocks everything like we do!•

Why Buy From PowerMax?

- Over 90% of our orders ship within 24 hours. We stock every major brand of Mac product from Adobe to Zoom!
- We speak plain English- no technotalk or high pressure.
- We consult with you, we want to make sure what you buy is what you need.
- Unlike most catalog outlets who try to keep prices low by limiting service options- we are a dealer who actually offers more expertise and service than most local full-priced dealers! We keep prices low through aggressive purchases, high volume and years of experience!
- All we ask is that you call a couple of the other guys first- then call us. You'll really appreciate our difference!

CIRCLE 446 ON READER SERVICE CARD

MAC MAN COMPUTER WAREHOUSE

800-931-2001

GOVERNMENT & UNIVERSITY P.O'S WELCOME.
International Orders Tel: 818-901-6250 Fax: 818-901-6260
Internet Address: 102431.2627@COMPUSERVE.COM
Bestellen Sie per Tel/Fax und genießen Sie den Vorteil des teifen U.S $$$ Kurses.

VIDEO BOARDS

POWERSHOP™
Nubus/PCI Accelerator
PowerShop
$1925

radius

ThunderColor 8/1600	$455
ThunderColor 30/1152	$1555
ThunderColor 30/1600	$1895

ATI XClaim GA PCI Card
2MB/4MBVRAM $349/455

SCANNERS

AGFA
Arcus II Plus
$1769

Studio Scan II si	$869
Studio Scan Trans.	$455

Nikon

Nikon CoolScan LS 10E	$1279
Nikon Super CoolScan	$1899

UMAX

U-MAX PowerLook Pro	$1799
U-MAX PowerLook II	$2869
U-MAX Mirage	$6895
U-MAX Vista S8pro+	$869
U-MAX Vista S6 LE+	$569
Polaroid Sprint Scan	$1599
Kodak RFS 3570	$7995
Kodak RFS 2035	$6495
Epson ES 1000C	$699
Epson ES 1200C Pro	$1099

PRINTERS

LW 12/600 Color	$5995
C.StyleWriter 2200	$385
StyleWriter 2400 Color	$379
StyleWriter 1200	$239

HEWLETT PACKARD

HP LaserWriter 4MV	$2695
HP LaserWriter 5MP	$999
HP DeskWriter 850C	$499

FARGO

Fargo Primera Pro	$1285
Fargo Pictura 310	$3295

Wacom Art -Z II 6X8	$295
Wacom Art -Z II 12X12	$429
Wacom Art -Z II 12X18	$659

MEDIA

Hewlett Packard 2GIG DAT	$835
Dynamo Optical 230MB	$495
SyQuest EZ 135 w/cart	$229
SyQuest EZ 135 Cartridge	$19
SyQuest 200MB w/cart	$469
SyQuest 270MB w/cart	$468
SyQuest 88c MB w/card	$349
iomega Zip 100MB	$199
iomega Zip Cartridge 5pak	$79.95
Pinnacle RCD 1000	$1329
Pinnacle RCD 5020i	$call
Pinnacle Apex 4.6 GIG	$1499
Pinnacle Sierra 1.3 GB	$1749
MO 230MB Cart	$29
MO 1.3 GB Cart	$57
Verbatim CD 74min.	$9
Olympus Deltis 1.3 MO	$1499
Olympus Deltis 230 MB	$499

9500/132 CD

144MB RAM
4 GIG HDD
ATI 4MB Card
Sony 20" SF II Mon.
Extended Keyboard
$9999

9500/132	48/2GIG/CD/ATI 4MB	$5595	8500/120	48/2GIG/CD	$4795
9500/132	80/4GIG/CD/ATI 4MB	$6895	8500/120	32/1GIG/CD	$3995
9500/120	32/1GIG/CD/ATI 4MB	$4295	8500/120	80/4GIG/CD	$6195

8500/120/CD

64MB RAM
2 GIG HDD/2MB V-RAM
Apple 1710AV Mon.
Extended Keyboard
$6695

7500/100	48/2GIG/CD	$3995	7200/90	32/1GIG/CD	$2395
7500/100	16/1GIG/CD	$2649	7200/75	24/1GIG/CD	$1695

7500/100 CD

32MB RAM/1GIG HDD
256K CACHE CARD
Apple 1710 Monitor
Extended Keyboard
$4295

8100/110	48/2GIG/CD	$3995	7100/80	16/1GIG/CD	$1829
8100/100	32/1GIG/CD	$2995	6100/66	16/1GIG/CD	$1695

MEMORY

8MB DIMM	$249
16MB DIMM	$479
32MB DIMM	$879
64MB DIMM	$1795
4MB Simm 72pin	$129
8MB Simm72pin	$229
16MB Simm 72pin	$439
32MB Simm 72pin	$849

CAPACITY	INT	EXT
160MB 2.5"	$99	$145
500MB	$159	$219
700MB	$199	$259
1GIG	$269	$319
2GIG	$695	$789
4GIG	$995	$1095
9GIG	$2065	$2149

Due to publication time advertising prices may vary. All prices includes cash discount. All products carry one year minimum manufactur's warranty on parts and labor. All Returns must have an authorization Number(RMA). Shipping and service fees are non-refundable. No Sales Tax outside of CA. Business hours are 8am to 6pm Mon-Sat.

CIRCLE 455 ON READER SERVICE CARD

POWER BOOKS

5300CE	32/1GIG	$5395
5300c	16/750	$3559
5300cs	16/500	$2649
5300cs	24/750	$3299

5300c/100
24MB RAM/750MB HD
Global 28.8 FaxModem
carrying Case
$4249

5300	8/500	$1695
190cs	8/500	$1695
190	4/500	$1499

MONITORS

APPLE

15"	$419
1705	$769
1710	$949
1710AV	$1049
20"	$1895

SONY

Sony 15" SF II Color	$479
Sony 17" SF II Color	$899
Sony 20" SF II Color	$1895

radius

Precision View 17	$969
Press View 17SR	$1799
Precision View 21	$2195

DIGITAL CAMERAS

Kodak DC50 Zomm Camera
Comes with three levels of image resolution, 3:1 zomm lens. PCMCIA-ATA comatible
$985

Kodak DC 40 Camera	$795

DCS 420 Digital Camera
Sports 1.5 million pixel resolution,initial continuous burst rate of 5 images in 2.25 seconds
$9357

AGFA Action Cam Digital Camera
Fully digital 3CCD/1528x1146 16.5x12.4 mm/Shutter speed 1/2000 to 1/2 sec.
$8499

Apple QuickTake 150	$649
CHINON ES-3000	$795
CHINON 16MB Flash Card	
Conectix Quickcam	$95

PERFORMAS

5215CD 8MB /1GIG	$1789
6116 CD 8/700	$1569

6300 CD/100
16/1.2 GB HD/Kybd
28.8 Fx/Mod- 15"Mon
$2495

6200 CD 8/1GIG/	$1795
6230CD16/1GIG	$2489

7200/90 CD
16 Ram / 700 HD
15" Color Mon/Kybd
$2795

7200/ 75 CD
24 Ram /1GIG HD
15" Color Mon/Kybd
$2195

LATEST

Mac S·A·L·E INTERNATIONAL

SPECIALS

* HUGE SAVINGS ON NEW *

New

PowerMac 7200
(CPU only)
75MHz 8/500/CD- $1,399.00
90MHz 16/500/CD- $1,799.00
Save $50 with Monitor & Keyboard Purchase

• Personal LaserWriter NTR •
Logic Board UPGRADE
With Trade-in - ONLY $99.00

New MS Word/Excel Bundle - $79.00
ONLY $49.00 With Any CPU

New MS Works V2.00 - $15.00
ONLY $10.00 With Any CPU

New

StyleWriter 1200
with Ink Cartridge & Cable
► $199.00 ◄

* NEW *

PwrMac 9500/120 16/1GB/CD	$3165.00	Apple 15" MultiScan	$375.00	MacAlly Ext. Kybd.	$55.00
Performa 5215 8/1GB/CD	$1699.00	Apple 14" MultiScan	$325.00	External Hard Drive Enclosure	$69.00
Apple StyleWriter 2200	$350.00	NEC CD-Rom Ext. Drive (1X)	$35.00	Apple PB Int. Data /Fax Modem	$25.00
PowerBook 140-180c Battery	$45.00	Laser IIg Logic Bd (Upgrade)	$450.00	Toner/Select 300,310,360	$69.00

* USED/ REFURBISHED *

(Other Configurations Available)

Desktop CPU's

Mac Plus No Kbd or Mouse		$99.00
Mac SE (800K)	1/0	$199.00
Mac SE (FDHD)	1/0	$299.00
•Mac II	4/0	$199.00
•Mac II	4/40	$225.00
•Mac IICX	4/80	$325.00
•Mac IIFX	4/80	$525.00
•Add 8 Bit Video Card		$50.00
Mac LC	2/40	$299.00
Mac LC II	4/80	$375.00
Mac IISI	5/80	$349.00
Mac IISI	5/160	$379.00
Mac IICI	4/80	$395.00
Mac IIVX	4/80	$549.00
Mac Portable	2/40	$350.00
Pwr Mac 6100/60	8/350	$925.00
Pwr Mac 7100/80	8/500	$1179.00
Centris 610	4/230	$575.00
Centris 650	4/230	$699.00
Centris 660AV	8/230/CD	$999.00
Quadra 650	8/230	$1199.00
Quadra 700	4/80	$699.00
Quadra 800	8/500	$1125.00
Quadra 950	16/500	$1499.00
Performa 200	4/80	$399.00
Performa 400	4/80	$375.00
Performa 600	5/80/CD	$649.00

(Performa's Are CPU Only)

PowerBooks

PB 100	4/40	$499.00
PB 145	4/80	$799.00
PB 145B	4/80	$799.00
*PB 150	4/120	$899.00
PB 160	4/80	$949.00
PB 165	4/160	$1029.00
PB 165C	4/80	$1299.00
PB 180	4/120	$1350.00
*PB 520	4/160	$1099.00
Duo 210	4/80	$599.00
Duo 230	4/80	$749.00
Duo Dock		$349.00
Duo Floppy Adapter		$59.00
Duo Battery Recharger		$45.00
PB Battery Recharger		$35.00
PB Int. Fax/Data Mdm		$25.00
PB 14.4 Express Mdm		$79.00
PB AC Adapters		$39.00

Video

Apple 8 Bit Video Cards	$85.00
Apple 13" RGB Display	$250.00
Apple 14" Color Display	$350.00
*Apple 15" MultiScan	$339.00
Apple 16" RGB Display	$649.00
Apple 17" MultiScan	$799.00
Apple 20" MultiScan	$1299.00
Performa Display	$179.00

Printers/Peripherals

**Personal Laser LS	$279.00
LaserSelect 300	$299.00
Stylewriter	$129.00
Stylewriter II	$159.00
Portable Stylewriter	$199.00
ImageWriter II	$199.00
I/W LocalTalk Card	$59.00
Apple Color Printer	$299.00
Apple OneScanner	$249.00
($25 OFF w/CPU Purchase)	
Apple Color OneScanner-	$399.00
Apple Ext. SuperDrive (1.44)	$149.00
Apple CD 300 Ext. Drive	$199.00
Apple HDI-20 Ext. FloppyDrive	$129.00
Apple 5.25" Drive(LC/IIe)	$79.00
Apple Design Kbd	$69.00
Apple Ext. II Kbd	$95.00
Din 8 Cable (CPU to ImageWriter II)	$5.00
Geoport Telecom Adapter	$79.00
PowerBook Cordura Carrying Case	$15.00
Apple PowerBook 4MB Ram	$85.00
(For Powerbook 140-180c)	
1MB /80ns Simm (30 Pin)	$15.00
Apple EtherNet & Network Cards - Call!!	

* Denotes Factory Refurbished

USED SYSTEM SPECIALS

Mac IIsi 5/80
Complete Color System
W/ Apple Color Monitor & Kbd.
► $599.00 ◄

Mac IIci 4/80
Complete Color System
W/ Apple Color Monitor & Kbd.
► $679.00 ◄

Mac LCII 4/80
Complete Color System
W/ Apple Color Monitor & Kbd.
► $579.00 ◄

APPLE POWER CD
3-in-1 Portable CD-ROM Drive
w/Remote Control
for: Mac CD-ROM, Photo CD
& Audio Compact Discs
► $149.00 ◄

We Now Feature A Huge Inventory Of Parts For All Apple Product And Also Offer Extended Warranties

Visit Our Web Site At: www.getnet.com/macsale Or E-Mail Us At: macsale@getnet.com

Limited Quantities/Prices subject to change
Prices represent a Discount - off Full Price
Returns at discretion of Mgmt./15% Restocking fee

1-800-729-7031

1150 W. Alameda Dr.,Ste.1&2,Tempe, AZ 85282
(602) 858-0900 /(602) 858-9537(Parts)

WE WANT TO BUY YOUR NEW/USED MAC EQUIPMENT

CIRCLE 401 ON READER SERVICE CARD

Complete Computer Packages · Monitors · Memory · Storage · Peripherals · Printers, and More!

WE'RE YOUR COMPUTER SOURCE

NEC · MICROTEK · RasterOps · radius · UMAX · QMS

6100/66MHz 8/500	$1247.00
6100 8/500 CD	$1355.00
7100 8/700 CD	$1715.00
7100 80MHz 8/500	$1602.00
7100 80MHz 16/700 CD AV	$1989.00
7200 75MHz 8/500 CD	$1559.00
7200 90MHz 8/500 CD	$1846.00
7500 100MHz 16/1GB CD	$2769.00
8100 16/700 CD	$2731.00
8100 100MHz 16/1GB CD AV	$2957.00
8500 120MHz 16/1GB CD	$3845.00
8500 120MHz 16/2GB CD	$4209.00
9500 120MHz 16/1GB CD	$4323.00
9500 132MHz 16/1GB CD	$5048.00
Performa 638 8/350 CD 15" color & kb	$1504.00
Performa 6200 8/1GB CD 15" color & kb	$1504.00
Imagewriter II	$398.00
Stylewriter 2400	$400.00
Stylewriter II	$177.00
Select 360 with toner	$335.00
Laserwriter 320	$301.00
Laserwriter 4/600	$880.00
HP DJ 850C	$542.00
Star SJ 144 CLR	$145.00
GCC Elite XL 1208	$3990.00
GCC Elite XL 808	$2849.00
GCC Elite XL 608	$2290.00
HP Deskwriter 660 C	$395.00
HP Deskwriter 560 C	$334.00
HP LaserJet 5 MP	$1019.00

Apple 14" Multiscan	$333.00
Apple 15" Multiscan	$422.00
Apple 17" Multiscan	$925.00
Apple 20" Multiscan	$1978.00
NEC XV17	$780.00
SuperMatch 17XL	$769.00
Viewsonic 17" GA (Multimedia)	$882.00
Fax Modem: Power Book 520/540	$324.00
Powerbook 190CS	$2145.00
Powerbook 5300 8/500 monochrome	$2140.00
Powerbook 5300CS 8/500 passive	$2578.00
Powerbook 5300CS 16/750 passive	$3247.00
Powerbook 5300C 16/750 active	$4059.00
Apple EXT keyboard	$156.00
Apple Keyboard	$75.00
Apple Design Keyboard	$73.00
MACaLLY extended Keyboard	$54.00
Microtek II scanner	$371.00
Microtek 2SP scanner	$468.00
UMAX UC 630 LE	$376.00

V-RAM

V-RAM for Power Mac 1MB	$85.00
V-RAM for 9500 2 MB	$404.00
512 Level II Cache	$401.00

DIMMS

8 MB	$323.00
16 MB	$565.00
32 MB	$1156.00
64 MB	$2151.00

SIMMS

1 MB SIMMS 1x9	$40.00
4 MB 72 Pin 1x32	$137.00
8 MB 72 Pin 2x32	$276.00
16 MB 72 Pin 8x32	$511.00
32 MB 72 Pin 8x32	$1048.00
16 MB for powerbook 5300	$704.00
32 MB for powerbook 5300	$1333.00
Smart UPS 400 VA	$280.00
Newton 120 1 MB RAM	$591.00

HARD DRIVES Quantum 3.5 Int.

730 MB	$184.00	2150 MB	$816.00
840 MB	$230.00	4300 MB	$1052.00
1080 MB	$282.00	External kit	$75.00
2100 MB	$651.00		

Sanyo 4X CD Int	$192.00
Syquest EZ-Drive 135MB	$242.00
Syquest 88MB External	$322.00
Syquest 200MB External	$472.00
Syquest 270MB External	$451.00
Optial 230 External	$515.00
Optical 1.3 GB External	$1526.00

Computer Pros

1-800-319-4MAC (45[illegible])

International Orders (305) 825[illegible]

HEWLETT PACKARD · FUJITSU · TEXAS INSTRUMENTS · Apple®

MPD

Micro Product Distributors

PowerMac's

7200/75 8/500 CD	1429.
7200/90 8/500 CD	1567.
7200/90 16/500 CD	1795.
7500/100 16/500 CD	2489.
7500/100 16/1GB CD	2766.
8500/120 16/1GB CD	3688.
8500/120 16/2GB CD	4149.
6100/66 8/500	1196.
6100/66 8/500 CD	1339.
7100/80 8/700 CD	1434.
7100/80AV 16/700 CD	2104.
8100/100 8/700	2009.
8100/100 16/1GB CD	2679.
8100/100AV 16/1GB CD	2870.
8100/110 16/2GB CD	3157.
9500/132 16/1GB CD	3799.
9500/132 16/2GB CD	3849.

Performa's

631CD 8/500	1330.
640CD DOS 12/500	1408.
5215CD 8/1000	1857.
6116CD 8/700	1578.
6220CD 16/1000 TV (*)	1857.
6205CD 8/1000	1949.
6200CD 8/100	1857.
6300CD 16/1000	2600.

(*) Display not included

PowerPC PowerBook's

5300/100 8/500	1690.
5300cs/100 8/500	2308.
5300cs/100 16/750	2769.
5300c/100 8/500	3139.
5300c/100 16/750	3693.
5300ce/117 32/1.1GB	5539.
Duo 2300c/100 8/750	Call
Duo 2300c/100 20/1.1GB	Call

PowerBook's

190/66 8/500	1596.
190cs/66 8/500	1878.

Printers / Keyboard's / CD's

SW 1200	233.	LW 4/600 PS	806.
Color SW 2400	365.	Extended Kybd	136.
Personal LW 320	760.	Design Kybd	74.
LW Pro 16/600	1,999.	Apple CD600E	298.

Free CD Software w/your CD purchase (while supplies last)

Displays

14" Multiple Scan	332.
15" Multiple Scan	395.
17" Multiple Scan	935.
1705 Multiple Scan	716.
Apple Vision 1710 AV	1009.
20" Multiple Scan	1878.

1-800-993-5673

Your PowerMac Number One Source.

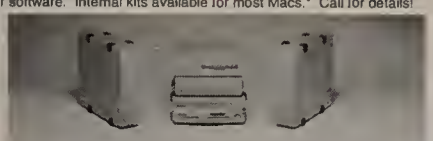
- 30 Day Money Back Guarantee (**)
- FREE FedEx 2nd Day Delivery on CPU's
- 48 Hours Turn-Around on Warranty Repairs
- School & Government PO's Welcome

Please call for Custom Configurations. Prices reflect 3% discount for CASH ONLY! Prices subject to change without notice. (**) Certain conditions apply. All Major Credit Cards accepted. Int'l orders Welcome, Call (305) 477-4441 or Fax Us at (305) 477-4602.

MCE

Mac Components Engineered
Int'l: 714-453-8278 Fax: 714-727-3713
196 Tehnology Dr., Ste. K, Irvine, CA 92718
1-800-5000 MAC
6 2 2

Sony 4X CD-ROM Drive!!
Internal $159 External $189
Includes CharisMac's CD AutoCache driver software. Internal kits available for most Macs.* Call for details!



All MCE hard drives are thoroughly tested and carry a 30-day Money-Back Guarantee along with the full manufacturer's warranty. External drives come with FWB Hard-Disk Toolkit formatting software, double-shielded SCSI cable, power cord, manual & terminator.

HARD DRIVES

Quantum

	Seek	Wty	Internal	External
Trailblazer 850	14ms	2yr	$189	$249
Fireball 1GB	12ms	3yr	$259	$319
Capella 2GB	8.5ms	5yr	$649	$709
Atlas 4GB	8.6ms	5yr	$979	$1039

Seagate

	Seek	Wty	Internal	External
2.1GB Hawk 2LP	9ms	5yr	$679	$739
2.1GB B'cuda 2LP	8ms	5yr	$799	$859
4.3GB Hawk 4	9ms	5yr	$985	$1045
4.3GB B'cuda 4	8ms	5yr	$1199	$1259
2.1GB B'cuda 2LP-Wide	8ms	5yr	$889	$969
4.3GB B'cuda 4-Wide	8ms	5yr	$1325	$1405

NEC

730MB D3825	11ms	2yr	$165	$225
1.0GB D3827	11ms	2yr	$245	$305

SCSI ACCELERATORS

Atto Silicon Express IV	$795
Atto Express PCI SC	$325
FWB SCSI JackHammer	$455
FWB PCI SCSI JackHammer	$375

Custom RAID solutions available! Call for details.

Prices drop frequently. Please call for latest pricing and avail. Corporate, Government and Education POs welcome. Visa, MC, Amex and Discover accepted. System's prices reflect cash discount. Must call for RMA number before returning merchandise.

REMOVABLE DRIVES

	Seek	Wty	External
1.0GB Iomega Jaz w/cartridge	9ms	5yr	$599
540MB Nomai MCD w/cartridge	8ms	5yr	$575
200MB SyQuest w/cartridge	18.5ms	5yr	$439
270MB SyQuest w/cartridge	13.5ms	5yr	$419
230MB Fujitsu MO w/cartridge	8ms	5yr	$469
230MB Olympus MO w/cartridge	10ms	5yr	$459
650MB Panasonic PD² w/cart	8ms	5yr	$549
4.6GB Pinnacle Micro Apex	17ms	1yr	$1549
1.3GB Maxoptix Tahiti III 3 cartridges!	18ms	1yr	$1759

SYSTEMS

Power Mac 7200/75 8/500/CD	$CALL
Power Mac 7200/90 8/500/CD	$CALL
Power Mac 7500/100 16/500/CD	$CALL
Power Mac 7500/100 16/1GB/CD	$CALL
Power Mac 8500/120 16/1GB/CD	$CALL
Power Mac 8500/120 16/2GB/CD	$CALL
Power Mac 9500/132 16/2GB/CD	$CALL

SPECIALS

Philips 17B Color Monitor w/adapter	$769
Yamaha 4X CD Recorder w/Toast	$1999
SupraExpress 288 FaxModem	$149

CIRCLE 491 ON READER SERVICE CARD

RECORDABLE CD

2X Includes 5 CD's
YAMAHA CD Recorders
TOAST CD-ROM Pro
2X WRITE / 4X READ
$999
MASTERLIST CD
CD-R BLANKS $6.99 Verbatim KODAK or MTC 74 Minute • 4X & 6X Cert.
4X $1999
with TOAST & CD-ROM TOOLKIT
Also JVC SONY Philips Pioneer and FWB CD-Recorders avail.

OPTICAL BLOWOUT
128MB. $11.99
230MB... $17.99
650MB Optical .. $39.99
1.3GB ... $49.99

FWB HAMMER 2X CD-R $1449

SYQUEST
105MB...$35 270MB...$56
44MB...$33 88MB...$37 200MB...$70

MACROMEDIA DIRECTOR Author Your Own CD Titles $CALL

CD-DA for Audio CD's ...$399
DigiDesign Masterlist ... CALL

MAXOPTIX T4 2.6 GB OPTICAL DRIVE $1999

iomega JAZ 1GB Removable HD
• 3.5" Removable Hard Disk Technologye
• 6.7 MB per sec. Ideal for Video
$599

MEDIASTORE
See us at HTTP://www.mediastore.com
800•555•5551
ph. 714-997-5551 • fx. 714-997-5553
NEVER UNDERSOLD!

CIRCLE 471 ON READER SERVICE CARD

BUYERS
✔ Large selection of over 20,000 seller listings to choose from!
✔ All equipment is thoroughly tested, serviced, & cleaned.
✔ Buyers have a two-day escrow period to check equipment.
✔ Bonded, licensed, and insured, escrow agents

UNITED COMPUTER EXCHANGE
Global Network for Buyers & Sellers of Used Macintosh Equipment
1-800-755-3033
Open 9-7 pm M-T ET

SELLERS
✔ No fee for listing equipment.
✔ Quick turn-around on payment.
✔ List and browse equipment for sale on our web page.
✔ http://www.uce.com
✔ Retrieve price indexes on fax info line.
770-955-0569

CIRCLE 478 ON READER SERVICE CARD

FAST CASH
For ALL Macs, Memory & Peripherals — Working or not
TOP DOLLAR PAID
Mac Traders (800)990-0995
(310) 576-2466 Mon.-Fri. 9 AM-6 PM Sat.10 AM-4 PM (P.S.T.) Fax: (310) 394-7323
1511 Lincoln Blvd. (bet. Broadway & Colorado), Santa Monica CA. 90401

MacUSA
Since 1983
800-809-0880
Voice: 818-704-8923
Fax: 818-704-9858
Dealer and International Orders Always Welcome!
We'll Beat Any Price!
Reach us on the Internet: 1. macs@ix.netcom.com 2. macusa@eworld.com 3. http://www.macusa.com
Free Shipping for All California Purchases.
Visa, AmEx, & MasterCard Welcome.
24422 Vanowen Street, Canoga Park
California 91307, U.S.A.
PRICES REFLECT CASH DISCOUNT AND ARE SUBJECT TO CHANGE

PowerMac

7200/75 8/500/CD	$$$CALL$$$
7200/90 8/500/CD	$$$CALL$$$
7200/90 16/500/CD	$$$CALL$$$
7500/100 16/500/CD	$$$CALL$$$
7500/100 16/1GB/CD	$$$CALL$$$
8500/120 16/1GB/CD	$$$CALL$$$
8500/120 16/2GB/CD	$$$CALL$$$
9500/120/16/1GB/4xCD	$$$CALL$$$
9500/136/16/2GB/4xCD/graphic card	$$$CALL$$$
Workgrp Srv 6150-66 16/700	$$$CALL$$$
Workgrp Srv 8150-110 16/1GB	$$$CALL$$$
Workgrp Srv 9150-120 16/2GB	$$$CALL$$$
6100-66 8/500/CD	$$$CALL$$$
6100-66 16/500/CD/DOS	$$$CALL$$$
7100-80 8/700/CD	$$$CALL$$$
7100-80 16/700/CD/AV	$$$CALL$$$
8100-100 16/700/CD	$$$CALL$$$
8100-100 16/1GB/CD/AV	$$$CALL$$$
8100-110 16/2GB/CD	$$$CALL$$$

PowerBook

150/520	Call for Latest
190 8/500	
2300 8/750	Prices and
5300 mono 8/500	
5300 CS/100 8/500	Availabilty on
5300 CS/100 16/750	
5300 C/100 8/500	These Hot
5300 C/100 16/750	
5300 CE/117 32/1Gig	Powerbooks!!

Performa Bundle

631 8/500/CD	$$$CALL$$$
638 8/350/CD/VI/TV	$$$CALL$$$
640 8/500/Dos/CD Bundle	$$$CALL$$$
5215/75 8/1GB/CD Bundle	$$$CALL$$$
6116/60 8/700/CD/Bundle	$$$CALL$$$
6200/75 8/1GB/CD	$$$CALL$$$
6205/75 8/1GB/28.8mod/Bundle	$$$CALL$$$
6220/75 16/1GB/CD/VI/TV	$$$CALL$$$
6300/75 16/1GB/CD/Bundle	$$$CALL$$$

Printers

Apple
Stylewriter/Laserwriter $$$CALL$$$
Hewlett Packard
Deskwriter/4M+/5MP/5S1 $$$CALL$$$
Epson, GCC, NEC, OkiData

Monitors
Apple, NEC, Radius, Sony, Viewsonic

Scanners
Agfa, Apple, Epson, Hewlett Packard, Microtek, Umax

Software Blowout!!!

MS Office V4.21 {Excel, Word, Powerpoint}	~~$525~~ $195!!
MS Word 6/Excel 5/Powerpoint4	Only $99 Each
Adobe Photoshop	$275
Adobe Illustrator	$275
Adobe Premier	$295
Adobe Pagemaker	$295
Micromedia Freehand	$395

CIRCLE 448 ON READER SERVICE CARD

LA's LEADING COMPUTER STORE!

LA COMPUTER CENTER

(800) 689-3933 ORDERS ONLY!

(310) 473-2535 FAX (310) 312-9041

NEW! e-mail us at: lacc@directnet.com

INTERNATIONAL ORDERS WELCOME! Call for Quantity Pricing!

WE WANT TO BUY YOUR NEW & USED APPLE PRODUCTS UNIVERSITY, SCHOOLS, GOV'T & FORTUNE 1000 P.O.'S ACCEPTED!

CLEARANCE SPECIAL!

STYLEWRITER 1200 $199
2400 $289

POWERMACS

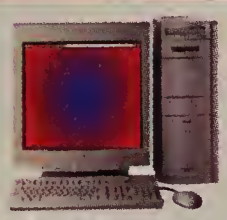
7500 100MHZ! 16/1GIG/CD **$2599**

MONITOR AND KEYBOARD SOLD SEPERATELY.

7500/100 16/500/CD $2449

8500 120MHZ! 16/1GIG/CD **$3499**

MONITOR AND KEYBOARD SOLD SEPERATELY.



9500 132MHZ! 16/1GIG/CD w/Video Card **$3499**

MONITOR AND KEYBOARD SOLD SEPERATELY.

6100/66	8/500/CD	$1299
6100/66	16/500/CD/DOS	$1999
7100/80	8/700	$1249
7100/80	8/700/CD	$1449
7100/80AV	16/700/CD	$1899
8100/100	8/700	$2099*
8100/100	16/1GIG/CD	$2499*
8100/100AV	16/1GIG/CD	$2799
8100/110	16/2GIG/CD	$2899
7200/75	8/500/CD	$1299
7200/90	16/500/CD	$1649
8500/120	16/2GIG/CD	$3899
9500/120	16/1GIG/CD	$3199

APPLE WORKSTATIONS & SERVERS

9150 8/2GIG/CD (80MHZ)	$3299
8150 16/1GIG/CD/DAT (80MHZ)	$2599
8150 8/500/AS (80MHZ)	$2499
8150 16/1GIG/CD/DAT/AS/80mh	$3099
95 32/2GIG/256K/DAT/AS/80mh	$3399

QUADRA

610	8/230/CD	$999*
630	4/250	$749*
650	8/230	$1399*
800	40/0 DEMO UNIT	$1799
950	8/0 OR 8/230	$1599/1699

POWERBOOKS

PowerBook 150

Award Winning 68030/33Mhz! TrackBall Mouse 9.5" Grayscale Internal Apple SuperDrive 5.5 Lbs. Very Affordable!

Special Apple Case $29

8/250 **$899**

PowerBook 5300

8/500 **$1499**

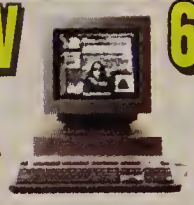
PowerBook 5300C

16/750 **$3499**

5300CS	8/500	$2249
5300CS	16/500	$2599
5300CS	16/750	$2699
5300C	8/500	$3049
5300CE	32/1GIG	$5549
190	8/500	$1599
190CS	8/500	$1899
180C	4/160/Modem	$1899*
540	4/240	$1649*
540C	4/320	$2399*
540C	12/320/Modem	$2999*
520	4/160 or 4/240 or 4/240(new)	$969*/999*/1099
520C	4/240	$1399*
520C	4/240/Modem	$1599*
520C	12/320/Modem	$1999*
Duo 230	4/80	$699*
Duo 250	4/200	$1199*
Duo 250	12/200/Modem	$1699*
Duo 280	12/240/Modem	$2299
Duo Dock/Duo Dock II		$399*/499*

PERFORMAS

638CDV 8/350/CD **$1049***



631CD 8/500/CD **$999***

INCLUDES 15" MONITOR & KEYBOARD

6115CD 8/500/CD **$1199***

6116CD 8/700/CD **$1249***

INCLUDES 15" MONITOR & KEYBOARD

635CD	5/250/CD w/14" Mon	$899*
636	4/250 CPU ONLY	$849
636CD	8/250/CD w/14" Mon	$949*
640CD	12/500/CD/DOS w/Mon	$1449
5215CD	8/1GIG/CD w/Mon	$1799
6116CD	8/700/CD w/Mon	$1599
6200CD	8/1GIG/CD w/Monitor	$1699
6205CD	8/1GIG/CD w/Monitor	$1899
6220CD	16/1GIG/CD NO Monitor	$1799
6230CD	16/1GIG/CD w/Monitor	$2349
6300CD	16/1GIG/CD w/Monitor	$2549

PERFORMA 550 BUILT-IN MONITOR 5/160/CD COMPLETE SYSTEM $749*

ORIGINAL APPLE 700MB HARD DRIVE! INTERNAL $169 EXTERNAL $229

PRINTERS

LaserWriter 4/600	$799
LW Personal	$329*
LW Select 320	$599
Select 360 w/Toner	$1149
LaserWriter 16/600/PS	$2099
Color LaserWriter 12/600	$5999
Portable Stylewriter	$239*
StyleWriter 2200	$369
StyleWriter 1200	$179*
HP DeskWriter 550C	$259*
HP LaserJet 5MP	$999
HP LaserJet 4M Plus	$1849
STAR COLOR PRINTER FOR MAC	$119

MONITORS

SONY

CPD 15SXI 15"	$429
CPD 15SFII 15"	$519
17SFII 17"	$849
GDM 17SEII	$1039
20SFII 20"	$1799

RADIUS

PrecColor 17/20	$699*/1299*
PressView 21	$1699*
Intellicolor 20I	$1199*
PrecisionView 21	$2099
MultiView 21	$1899

APPLE

15" MultiScan **$349**

17" 1705	$699
17" 1710	$949
17" 1710AV	$999
20" MultiScan	$1799

GE 4 YEAR ON SITE WARRANTY!

ASK YOUR SALES REP REGARDING GE EXTENDED ON SITE WARRANTY

$100 to $350	$351to $350	$701 to $1200	$1201 to $2000	$2001 to $3000	$4001 to $5000
$49.95	$79.95	$139.95	$169.95	$199.95	$259.95

FedEx NEXT DAY AND SAME DAY SHIPPING AVAILABLE, WE SHIP WORLDWIDE!

OPEN SATURDAY, VISIT OUR SHOWROOM!

12002 PICO BLVD. WEST LOS ANGELES, CA 90064

* Reflects Refurbished Units. Prices Subject To Change Without Notice. CALL FOR LATEST PRICE. ALL PRICES REFLECT A 2% CASH DISCOUNT Credit Cards Will Be Verified For Fraudulent Use.

WE WILL TRY TO BEAT ANY ADVERTISED PRICE!

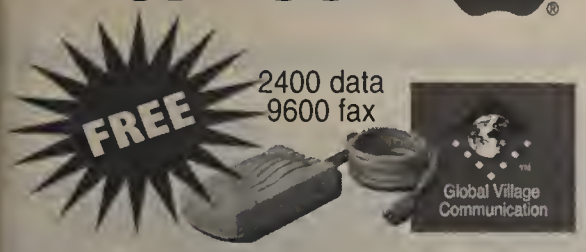
SUBJECT TO AVAILABILITY & VERIFICATION OF ADVERTISEMENT

EXTENDED WARRANTIES AVAILABLE!

CIRCLE 497 ON READER SERVICE CARD

Parts Trades Upgrades

*Call 318-424-9791



Teleport™ Bronze Faxmodem
with any upgrade!

$1399
NEW
monitor & keyboard not included

PowerMacintosh 7100/80
8/500/CD

Make a trade-up!
Call Purchasing at 318-424-9791

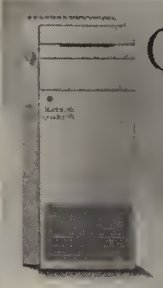
BARGAIN BASEMENT

MACINTOSH SYSTEM 7.5 .....25/35.
New Duo Type 1 Batteries.....15.
IIvx Logic Board.....249.
Newton Fax/Modem 2400.....49.
PowerBook 140-180c keyboard.....49.
PowerBook 140-180 A/C adapter .....49.
Curtis Trackball Mouse new.....39.
StyleWriter ink cartridges: 3 for 29
ImageWriter LQ ribbon.....6.
IIsi Power Supply.....CALL.
PowerBook Canvas Tote Case.....19.
Quadra 660AV NuBus Adapter .....49.
Personal NT Logic Bd..... 49.
1.44 internal floppy drive NEW .....129.
Mac Plus Keyboard..... 29.

Macintosh Logic Board Upgrades

Mac II to IIfx with memory exchange	only $449
Personal NT to NTR printer ugprade	exchange $199
LaserWriter IINT/NTX to IIf	exchange $499 NT/399 NTX
Centris 610 to Quadra 660AV	exchange $399
Quadra 660AV TO PowerMac 6100/60	exchange $699
Quadra 800 to Quadra 840AV	exchange $499
Quadra 800/840av to PowerMac 8100/80	exchange $999
IIvx to PowerMac 7100/80	exchange $999
LC550 to LC575	exchange $499
IIvx or IIci to Centris 650	exchange $399
Classic to Classic II	exchange $199
IIsi to Performa 630 cpu swap	exchange $399

LC & LCII/LCIII to Quadra 605
•LC & LCII $449/LCIII $349

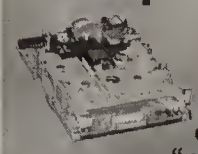


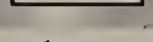
Quadra 950 8/500
$1499
Brand New!
1-Year Apple Warranty

ADB Mouse II
$49
FREE mousepad

8MB DIMMS
$239
8MB SIMMS
$239

Replacement SuperDrives™
New $149
Refurbished $129
Available in original and newer "manual insert" styles





11x17 Printing
Apple Color Printer
transparencies 360 dpi
ColorSync™
$699 NEW

Performa 578
The Family Macintosh
- 33Mhz MC68LC040 processor
- 8MB RAM, 320MB hard drive
- extended keyboard
- double-speed CD-ROM
- built-in speakers & microphone
- fax-modem: 2400data, 9600 fax

$1149 new

PRE-INSTALLED SOFTWARE
- Macintosh System 7.5
- ClarisWorks
- Quicken 4
- Best of HomeWorks Templates
- ClickArt Performa Collection
- Macintosh PC Exchange
- At Ease
- Grolier Multimedia Encyclopedia

...and lots more!

Diskettes
$25
CD-ROM $35

Macintosh CPUs

LCIII 4/0, no floppy or mouse NEW	$249.
*LC550 4/160/CD	$749.
LC580 8/500/CD	$999.
Performa 575 5/250/CD NEW	$999.
Performa 630 4/250/CD	$699.
*Performa 6100/60 8/250/CD	$1149.
Centris 650 4/0	$799.
Quadra 605 4/160 NEW	$649
Quadra 660AV 4/0	$749.
Quadra 840AV 0/0	$1149.
Quadra 800 8/0	$1149.
Quadra 950 8/500 NEW	$1499.
PowerMac 6100/66 8/350/CD NEW	$1299.
PowerMac 7100/80 8/500/CD NEW	$1399.
PowerMac 8100/80 8/500	$1499.

Monitors

Apple 13" Trinitron	$299.
*Apple 14" Performa Plus .29	$229.
*Apple 14" AudioVision	$349.
*Apple 15" MultiScan	$349.
Apple 16" Trinitron	$699.
Apple Portrait Display REFURBISHED	$329.
*Hewlett-Packard 17" with card	$749.
*Hewlett-Packard 20" with card	$999.
Radius PrecisionColor Pivot	$549.
Radius TPD 19" mono	$399.
Radius TPD 21" mono	$549
Radius PrecisionColor/20	$1199.
Radius Color Display/21	$1299.
RasterOps Sweet 16	$599.
RasterOps GDM-1950 20"	$849.

Video Cards

640 x 480

RasterOps 208 NEW	$119.

832x624

RasterOps 24Mx NEW	$199.
E-Machines DoubleColor LC	$149.

1024 x 768

E-Machines DoubleColor SX NEW	$149.
SuperMac Spectrum 24/Series IV NEW	$349.
RasterOps ClearVue/GS30 NEW	$299.
RasterOps PaintBoard Turbo NEW	$299.

1152 x 870

Apple 8•24	$229.
Apple 8•24GC NEW	$269.
Apple 4•8	$199.

PowerBook & Duo Display Adapters

E-Machines PowerLink Presentor-Duo	$349.
SuperMac SuperView-PowerBook	$299.

PowerMacintosh A/V Cards
$499

Printers

*Apple StyleWriter 1200	$219.
Apple Color StyleWriter 2400	$269.
*Apple Personal LaserWriter LS	$299.
Apple Personal LaserWriter 300	$319.
Apple Personal LaserWriter NT	$599.
Apple Personal LaserWriter NTR	$699.
Apple LaserWriter IINT	$699.
Apple LaserWriter IINTX	$899.
Apple LaserWriter Pro 810 NEW	$2699.
Apple Color Printer NEW	$699.
Hewlett-Packard DeskWriter C	$219.
Hewlett-Packard 550c	$249.

Laser toner cartridges sold separately

PowerBooks

PowerBook 520 4/240 25Mhz 040	$1199.
PowerBook 520c 4/240 25Mhz 040	$1599.
PowerBook 170 4/80	$999.
PowerBook 180 4/80	$1349.
PowerBook 160 4/80	$1149.
PowerBook 150 4/120	$899.
PowerBook 145 4/80	$999.
PowerBook 140 4/40	$849.
DuoDock Type 1	$399.
Duo 230 4/80	$899.

We Buy, Sell & Trade PowerBooks
Call Purchasing Department
(318) 424-9791

SHREVE Systems
Celebrating 15 years in business

To Place Your Order Call:
1•800•227•3971
1200 Marshall St.•Shreveport LA 71101

VISA MasterCard DISCOVER

FAX (318) 424.9771
Customer Service (318) 424.9791
Purchasing & Information (318) 424.9791
Technical Support (318) 424.7987 or 7988
Prices reflect a 2% cash discount and are subject to change without notice. Products are refurbished unless indicated as "new". Asterisk means *factory* refurbished.

CIRCLE 425 ON READER SERVICE CARD

Power Systems & Supplies.

POWER MACS

Power Mac 9500/132 16/2GB/CD	3,599
Power Mac 9500/120 16/1GB/CD	3,299
Power Mac 8500/120 16/1GB/CD	3,599
Power Mac 7500/100 16/1GB/CD	2,649
Power Mac 7200/90 8/500/CD	1,549
Power Mac 7200/75 8/500/CD	1,199
Power Mac 8100/100 8/700/CD	2,299
Power Mac 8100/100 AV 8/700/CD	2,599

NEW POWER BOOKS

Power Book 5300/100 8/500	1,599
Power Book 5300/100 CS 8/500	2,399
Power Book 5300/100 C 16/750	3,599

PERFORMAS

Performa 5215/75 8/1GB/CD/FAX	1,749
Performa 6200/75 8/1GB/CD*	1,299

All products are fully warranted. Dealers inquires welcome.

PERIPHERALS

Laserwriter Color	5,399
Stylewriter 2200 Color	369
Laserwriter 4/600	799
CD ROM 600 External	299
Apple Monitor 14" NEW	319
Apple Monitor 15"	419
Apple Monitor 17" NEW	699
Apple Monitor 20"	1,849

SCANNERS

Microtek	CALL
Umax	CALL
Nikon	CALL

SyQuest ext.

	CARTRIDGE	DRIVE
88MB	45	199
200MB	65	369
270MB	57	369
EZ 135MB	19	199

Prices, availability and specifications are subject to change without notice. Prices reflect a cash discount!

CIRCLE 543 ON READER SERVICE CARD

Ad # 496 c

Internet Address: 74673.1503@COMPUSERVE.COM
FAX (818)787-2111
FAX Back 787-4548

Universal Computers 800-621-1963

Sales (818)787-1054
Export (818) 786-8150
BEST PRICE GUARANTEED!

All prices reflect C.O.D. orders only & are subject to change without notice

Specials

Work Group Servers 8150 16-1GB CD, DAT, AppleShare **$3995**

Quadra 950 8-500 $1595

CD ROM Multimedia Package Special

- Animals
- America Alive
- Sherlock Holmes
- Multimedia Encyclopedia 4.0
- World & US Atlas

$49

Software

Microsoft Office 4.2.1	$399
Microsoft Excel 5.0	$199
Microsoft Word 6.0.1	$199
WordPerfect 3.1	$225
Adobe Photoshop 3.04	$469
Adobe Illustrator 5.5	$299
QuarkXpress 3.3 PPC	$649
Adobe PageMaker 6.0a	$399
SoftWindows for Power Mac	$249
Other Software	CALL

radius Specials*

Precision Color Pivit	$345
Precision Color 21"	$1399
SuperMac 21" Color	$795
SuperMac 21" TXL	$1195

*Factory Reconditioned w/90 Day Warranty

Power Macs

9500/132 32-4GB CD	$4495
9500/132 16-2GB CD	$3295
9500/120 16-1GB CD	$2895
8500/120 16-2GB CD	$3595
8500/120 16-1GB CD	$3295
8100/100 16-700 CD	$2395
7500/100 16-1GB CD	$2345
7200/90 16-2GB CD	$1995
7200/90 16-500 CD	$1575
7200/75 16-2GB CD	$1795
7200/75 8-500 CD	$1175
6100/66 & 7100/66	CALL
All Custom Configurations	CALL

PowerBooks

5300ce 32-1GB	$5095
5300cs/5300c 16-750	$2595/3175
5300/5300cs 8-500	$1395/2095
540C 12-320 Modem	CALL
520/520C 4-240	$1095/1545
540 Mono 4-240	$1595
520C 12-320 Modem	$2295
190/190cs 8-500	$1449/1695
150 4-120/8-250	$665/895
DUO 280/230 4-240	$1485/885
DUO 2300C/Duo Dock/Mini Dock	Call
DUO 280C 12-320 Modem	$2795
4/8/16/32 Mem.	$129/279/479/995

Performa

6300 CD 16-1GB CD, 256K	$2245
6200 CD 8-1GB CD	CALL
6116 CD 8-700 CD	$1345
5215 CD 8-1GB CD	$1595
636/637 5-350 CD	$596/695
410 4-80, Monitor, KB.	$595
All Other Performa Models	CALL

APPLE Printers

StyleWriter 1200	$189
LaserWriter Pro 810	$2395

800dpi, 20ppm, 11x17 Prints

Color LW. 12/600 PS	CALL
StyleWriter 2400/2500	$289
StyleWriter 2200	$355
Apple LaserWriters 220Volt	CALL

STAR COLOR Portable Printer $95

- Full color & monochrome laser quality printer
- Speed: up to 382 cps(15 cpi) in laser quality mode

Printers Monitors — radius — Graphics Cards

Proof Positive Color Printer	$3150
VideoVision Studio 2.0/Basic	$2345/999
Thunder Color 30 1152/1600	$1599/1999
Thunder 30 1152/1600	$795/1195
Precision Color 8/1600 PCI Card	$449
Thunder IVGX 1152/1360/1600	$1495/1795/1995
Precision Color Pro 24X	$499
LeMans GT/IntelliColor 20e	$595/1745
21" TXL New/PressView 21 Reconditioned	$1950/1395
Precision Color Pivot/Mono Reconditioned	$349/199
Radius Mono 20"/21" Reconditioned	$299/399

TRUEVISION — First in Digital Video

Targa 2000	$3099
Targa 1000	$2550

HEWLETT PACKARD — Printers & Scanners

NEW DeskJet 850C/855C	$449/495
NEW DeskJet 1600CM/1200CPS	$1879/1095
LaserJet 5MP 600dpi, 6ppm, 3MB, PS. Level 2	$989
DeskWriter 660C/600/540	$379/229/199
NEW DeskWriter Por. 340/320	$325/220
ScanJet 4C/4S/4SI	$895/345/2200
*LaserJet 4MP 600dpi, 6MB, PS. Level 2	$649
*LaserJet 4M+ w/Ethernet 600dpi, 12ppm	$1659*
*LaserJet 4M 600dpi, 6MB, 8ppm, PS. Level 2	$1169*
HP Plotters & Accessories & 220Volt Products	Call

*Factory Reconditioned w/ HP Warranty up to 3 Year

Kodak

450GL Color Printer $295
- 4x5.5" 24 bit color continuous tone prints,
- Prints w/Photo Quality perfect for photo studio

ColorEase Printer $2495
- 16MB RAM/120MB HD, PS. Level 2
- 16.7 million Color(24 bit), ideal for photo studio

Performa 630 8/500MB CD $795

Apple 15" Muliscan $369

CIRCLE 541 ON READER SERVICE CARD

MacBYTE
SERVING MACUSERS SINCE 1989
LOW & HIGH END CUSTOM SETUPS
CASH FOR MACS
TECH SUPPORT: 310.448.4488
FAX 310.448.4494
BUY • SELL • TRADE
800-432-2983
Open Monday-Saturday
4215 Glencoe Ave. 1st Floor
Marina Del Rey, CA 90292
CIRCLE 428 ON READER SERVICE CARD

HAWKE BUSINESS SYSTEMS
A Division of the CPS Services Group
Flemington, NJ 08822
(800) 875-2610
Fax - (908) 782-7027
Email - MacHawke@AOL.COM
Check Our Saturday Specials in AOL Mac Classified
We Buy, Sell, Trade & Repair Mac Equipment
Mac Se 4/40 - 800k - $299.00
Mac Se 4/40 - 1.4Meg - $375.00
Mac Classic 4/40 - $399.00
Mac Classic II 4/80 - $499.00
Mac Se/30 5/80 - $599.00
Mac IISi 5/80 w/ FPU - $449.00
Mac IICi 5/80 w/ Cache - $549.00
Quadra 900 4/0 - $1299.00
Complete with Keyboards and Mice
6 Month Parts & Labor Warranty
Package Pricing on All Systems
Exchange Upgrades
Mac Classic to Mac Classic II - $199.00
Mac II to Mac IICx w/ FDHD - $249.00
Mac II to Mac IIFx w/FDHD - $499.00
Mac IICx to Quadra 700 - $549.00
Mac II Ci to Quadra 700 - $499.00
CPU case included in Exchange
Other Combinations Available -Call for Details
Refurb 800 K Int Floppy Drives (w/t) - $39.00
New 1.4 4 Meg Int Floppy (w/t) $125.00
Refurb 1.44 Meg Int Floppy (w/t) - $89.00
Apple Portrait Monitor - $199.00
Apple Hi Res Color Monitor - $225.00
CIRCLE 457 ON READER SERVICE CARD

Memory Wanted
WE BUY NEW OR USED
SIMMS
256K, 512K, 1MB, 2MB, 4MB, 8MB, 16MB, 32MB.
30 Pin, 64 Pin or 72 Pin.
POWERBOOK 2MB - 28MB
We Buy In Quantity. Call Us or Send Fax.
INNOVATIVE MICRO PRODUCTS, INC.
7631 Leesburg Pike, Suite A
Falls Church, Virginia 22043
Tel.: 703-848-0711 Fax: 703-848-0712
CIRCLE 462 ON READER SERVICE CARD

SimmSaver Memory Solutions
NEW!
PRINCETON memory for Mac, PowerPC, PowerBook. Highest quality, best price/performance. Lifetime Guarantee!
NEW!
DIMMSAVER/R is the reversible adapter that converts two 72-pin SIMMs into one 2M, 4M, 8M, 16M, 32M, 64M, 128M DIMM!
NEW!
SLIDER w/thermal fan allows user to increase/decrease CPU performance via software
1-800-636-7281
Tel. (316) 264-2244 • Fax: (316) 264-4445 • http://WWW.globaltouch.com/sti • Email: simmsave@globaltouch.com
CIRCLE 402 ON READER SERVICE CARD

That Last A Lifetime... ... And Will Cost Less!
MEMORIES
SIMMS: 30-PIN, 72-PIN, 1-32MB
DIMMS: 168-PIN, 4-128MB
CACHE: 256K, 512K, L2
VRAM: 1MB, 2MB
POWERBOOKS & PRINTERS
COMTECH INTERNATIONAL
101 N. ROBERTSON BLVD., SUITE 200, BH CA 90211
1.800.444.6969
Tel: 310.358 90
Fax: 310.659
CIRCLE 422 ON READER SERVICE CARD

MEMORY
LOWEST PRICES·BEST QUALITY
LIFETIME GUARANTEE
30 PIN SIMMs
1MB/2MB/4MB/8MB/16MB
72 PIN SIMMs
4MB/8MB/16MB/32MB
168 PIN DIMMs
4MB/8MB/16MB/32MB/64MB
ALL POWER BOOK's
2MB-36MB
1MB DIMM VIDEO RAM
9500/8500/7500 Series
2MB VIDEO UPGRADE
9500/8500/7500 Series
VIDEO RAM
256K/512K
POWER MAC CACHE
256K/512K/1024K
DIMM CACHE
256K/512K/1024K
MEMORY FOR ALL PRINTERS
FPU & PROCESSOR's
68040 Processor w/FPU 25MHz /33MHz
68882 FPU 25MHz /33MHz
DMS
Data Memory Systems Inc.
Salem, NH 03079 Tel: 603-898-7750 Fax: 603-898-6585
http://www.maxsol.com/dms
University, Government and Corporate P.O.'s with Approved Credit
1-800-662-7466
Memory Upgrade Specialists Since 1987
CIRCLE 447 ON READER SERVICE CARD

WANTED: Used Memory
TOP $$$ PAID
Guaranteed! We'll honestly try to beat ANY price!!
256K-64Mb ▪ Any Quantity
DIMMS Here Now!
We Buy Macs ▪ Trade-Ins Welcome
New & Used SIMMs—CALL!
(800)80-WE-BUY
MAC Solutions (310)394-0001
1416 Wilshire Bl., Santa Monica, CA 90403 Fax (310)394-7744
CIRCLE 473 ON READER SERVICE CARD

FREE → SHIPPING FOR YOUR FIRST ONLINE ORDER! (UP TO 10 lbs)

The LLB Company, Inc.

1-800-848-8967

International: 206.746.0229 WEB SITE: HTTP://llb.com Fax: 206.746.5168

MODEMS

GLOBAL VILLAGE

Teleport Platinum 28.8 V.34	$205
PowerPort 1XX Platinum 28.8 V.34	339
PowerPort Gold PC Card 14.4	180
PowerPort Platinum PC Card 28.8	349
PowerPort Platinum PRO PC Card	519

SUPRA

SUPRA Simple Internet 28.8 Ext.	$189
SUPRA 28.8 V.34	229
SUPRA 28.8 PB FAX Modem	189
SUPRA EXPRESS 144 PLUS	99
SUPRA EXPRESS 288 External V.34	165

U.S. Robotics

28.8 Sportster V.34 Internet Bundle	$212
Sportster 14,400 Mac & Fax	119
28.8 V.34 PCMCIA Sportster	291

TDK

28.8 V.34 PCMCIA P8190/S300	$259

Motorola

Lifestyle 28.8 V.34	$212
Power 28.8 V.34	270
ISDN Bitsurfer	279

MEMORY

8MB 72PIN $196

Standard 30-pin SIMMs	
1MB 100/80/70NS	$31/32/35
2MB 80/70NS	65/74
4MB 80/70NS	114/135
8MB 70NS	270
16MB 70NS	455

30-pin, 36 bit PC SIMMS	
1MB 70NS	$45
4MB 70NS	159

4MB PAL SIMMs for II,IIx	
4MB 80/70NS	$149/151

64-pin SIMMs for IIfx	
1MB 80/70NS	$43/43
4MB 80/70NS	155/155
8MB 70NS	349
16MB 70NS	520

72-pin SIMMs	
4MB 70/60NS	$101/112
8MB 70/60NS	196/209
16MB 70/60NS	415/448
32MB 60NS	859

72-pin, 36 bit PC SIMMS	
4MB 70NS	$147
8MB 70NS	339
16MB 70NS	475
32MB 70NS	1221

168-pin DIMMs ✓	
4MB 70NS	$138
8MB 70NS	226
16MB 70NS	442
32MB 70NS	895
64MB 70NS	1835

✓ PB 5300 Series	
8MB/12MB RAM	$292/469
16MB/32MB RAM	569/1159

PB 190 Series	
4MB/8MB 70NS	$207/368
12MB/16MB 70NS	507/599
32MB70NS	1219

PB500 Series	
4MB/8MB RAM	$155/293
16MB/MB RAM	5671115

PBDUO 210/230 Series	
PB 0U0-4MB/8MB	$169/299
PB 0U0-12MB	479
PB 0U0-14MB	549
PB 0U0-20MB	698
PB 0U0-28MB	1172

What type of Memory do I need?

Standard 30-Pin Simms: Plus, SE, SE 30, Classic, Classic II, Color Classic, LC, LCII, Performa 200, Performa 400-430, Performa 600, Quadra 900/950, Mac II, IIx, IIcx, IIsi, IIci, IIfx, IIvx, IIvi.

Standard 72-Pin Simms: Quadra 605/630, 610, 650, 700, 800/840AV, LCIII, LC475, LC630, Performa 450-560, 575 and 611SCO, PowerMac 6100, 7100, 8100, WS 80, WS60, WS 95, WS 6150 and WS 8150, 9150.

168 Pin Dimms: PowerMac 9500, 8500, 7500, 7200

MEDIA

SONY

CDR 10 PK $73

Magneto Optical Disks	
5.25" MO 1.3GB 1024k b/s / 1.2GB 512k b/s	$60
5.25" MO 650MB 1024k b/s / 594MB 512k b/s	55
3.5" MO 230MB/Mac Formatted	28/30
3.5" MO 128MB/Mac Formatted	24/26
SONY CD-Recordable	
74 Min 4x 650MB-10 Pack	$73
74 Min 4x 650MB	8

Verbatim

DataLife 4mm/8mm Data Cartridges	
8mm, DL 112 Meters 2.5/5.0GB	$7
4mm, DL 60 Meters DDS-MRS 1.3GB	7.50
4mm, DL 90 Meters DDS-MRS 2.0GB	9.50
Iomega ZIP Cartridge 100MB	$19
- 3pack/10 Pack	49.50/139
Iomega Jaz 1GB Cartridge/5 Pack	123/490
Iomega Jaz 540MB Cartridge/5 Pack	69/294

SyQuest

SYQEZ135CTG	EZ135	$19.50
	- 5pack	96.25
	- 10Pack	190.00

The Original SyQuest Cartridge

	1-4	5-9	10+
44MB 5.25"	$42	$41	$40
88MB 5.25"	$48	$47	$46
200MB 5.25"	$76		$74.75
270MB 3.5"	$59	$58	$57
105MB 3.5"	$55		$54

DRIVES

APPLE

1080MB	409
850MB	339
2GIG	925

QUANTUM

1080 Ext. Fireball	$345
Capella 2.2 GB	759
850MB Ext. Trailblazer	279
Grand Prix 4.2 GB 8.6 MS	1049

Rumi

200MB SyQuest w/Cart	479
270MB SyQuest w/Cart	479

NEC

6XE Multi-Spin CD-ROM Drive	$519
4XC 7CD Changer	369

FWB incorporated

2X CD Recorder/Writer	$1485
4X CD Recorder/Writer	3035

SyQuest EZ135 W/Cartridge	224

Iomega

Iomega Zip Drive	$199
Jaz 1.0GB Drive	605

PINNACLE MICRO

RCD1000 w/10 Recordable CD's	$1295
RCD5020 Ext. CD Recorder	1265
APEX 4.6GB Optical Drive	1589

FPU/COPROCESSOR/VRAM

FPU's/Math CoProcessors	
Centris FPU 25MHz	$189
FPU 33MHZ 0U0/P600	52
FPU Color Classic 16MHZ	44
LCS75 33MHZ Math CoProc.	285

VRAM/CACHE	
256K 80NS Video RAM	$17
512K Video RAM	22
256K/512K Cache Card	107/411
1MB Cache Card	792
1M8 VRAM PM72/75/8500	$65
2MB VRAM PM 9500	229
256K Cache Oimm PMPCI256	176
512K Cache Oimm PMPCI512	299

MONITORS

AppleVision 17" $959

AV1710	APPLE VISION 17"	$959
MS1705	MULTISCAN 17" 28MM	759
MS20	MULTISCAN 20"	1,989
15SF	SONY 15" SFZ MULTISCAN	539
17SE1	SONY 17" 17SE1	1,150
17SF	SONY 17" MULTISCAN	939
XE15	MULTISYNC XE15 15"	$620
XE17	MULTISYNC XE17 17"	1,099
XE21	MULTISYNC XE21 21"	1,845
XP17	MULTISYNC XP17 17"	1,135
XV15	MULTISYNC XV15 15"	499
XV17	MULTISYNC XV17 17"	829

CD-ROM

Accessories			
Mark I Flight Cont.Sys	95	Marathon II	45
Mark I Weapons Cont.Sys	69	Monopoly/Virgin	42
Rudder Control System	105	Myst	49
Entertainment		Power Pete	27
Battle Beast	29	Phantasmagoria	59
Dark Forces	49	Rebel Assault II	50
Descent	50	Triple A Pak	40
Dust	39	Warcraft 1.0	48
F/A-18 Hornet 2.0	49	**Miscellaneous**	
Full Throttle	49	Soft Windows 2.0	299
Havoc	39	Quicken 6.0 Deluxe	65

FREE CATALOG!

1.800.848.8967

E-Mail us!

Electronic orders:
Compuserve @ 73423.1272
@Compuserve.com

- P.O.'s accepted upon approval
- All major credit cards accepted - No surcharge - when shipped
- Prices subject to change, not responsible for errors
- We export to most countries in the world
- Orders received before 8:00 pm EST weekdays shipped same day
- Open 6am to 7pm M-F. 9am to 4pm Saturdays
- Returns subject to a 15% restocking fee

The LLB Company, Inc. 13228 NE 20th St., Suite B, Bellevue, WA 98005

ACCELERATORS

DAYSTAR DIGITAL

PowerPro 601 100MHZ $1240

Turbo 040 40MHZ w/cache	$679
Turbo 040i 33MHZ w/cache no FPU	609
PowerPro 601 100MHZ w/cache	1240
Turbo 601 100 MHZ w/adapter	1175
PowerGard 601 100MHZ	959

SONNET

Quad Doubler 40MHZ Centris610	235
Quad Doubler 40MHZ w/FPU Centris 610	345
Quad Doubler 50MHZ w/FPU Quadra 610	390
Quad Doubler 50MHZ w/FPU Centris 650	390
Quad Doubler 50 MHZ Centris 660AV/7/900	390

PRINTERS

APPLE

Color Laserwriter 12/600	$6465
Laserwriter 4/600	895
Personal Laserwriter 320	809

HEWLETT PACKARD

HP LaserJet 5L	$515
HP LaserJet 5P Plus	888
HP LaserJet 5si	2860
HP DeskWriter 660C	399

EPSON

STYLUS COLOR II PRINTER	$409
STYLUS COLOR PRO XL PRINTER	1795

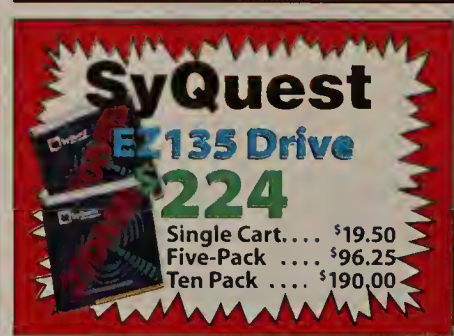
SCANNERS

EPSON	1200C PRO	$1202
VISIONEER	PaperPortVX for Mac	365
NIKON	CoolScan External	1379
	Super CoolScan	1999
AGFA	StudioScan IISI	865
	ARCUS II	1941
POLAROID	SPRINTSCAN	1555

UMAX

POWERLOOK II (includes Transparency Adapter)	$2829
VISTA S-12 PRO+	908
VISTA S-12 LE+	808
VISTA S-6 PRO+/LE+	CALL FOR NEW LOW PRICE

AIRBORNE EXPRESS OVERNIGHT $6 up to 10lbs



WD0496

CIRCLE 563 ON READER SERVICE CARD

ACCELERATORS

MEMORY and CACHE Cards

DAYSTAR DIGITAL

MicroMac Technology

XCEED

Newer TECHNOLOGY

XLR8 INCORPORATED

Pacific MAC 1-800-622-6261

206-935-6100 • fax 206-935-7937
e-mail PACIFIKMAC@aol.com
http://www.pacificmac.com

CIRCLE 409 ON READER SERVICE CARD

DIMMs

8mb	$235
16mb	$455
32mb	$915

SIMMs 72 PIN

4mb	$105
8mb	$224
16mb	$385

SIMMs 30 PIN

1mb	$ 25
2mb	$ 65
4mb	$115

CACHE

Model	256k	512k
61/71/81	$105	$230
72/75/85	$225	$325

All prices subject to change. Limited to stock on hand.

MAC Solutions 310-394-0001
(800)80-WE-BUY
Trade-Ins Welcome

CIRCLE 410 ON READER SERVICE CARD

MEMORY TRADERS

BEST PRICES
GREAT SERVICE
LIFETIME GUARANTY

800-315-7807

1117 N. 19th St.
Suite 1201
Arlington, VA 22209

703-243-4006
Fax 703-522-6626

CIRCLE 409 ON READER SERVICE CARD

PallyRam

BRAND NEW RAM UPGRADES

SIMMS
8MB $219
16MB $439
32MB $879

DIMMS
8MB $269
16MB $499
32MB $979

LOWEST PRICES ON THE CONTINENT
1-800-287-9612

CIRCLE 417 ON READER SERVICE CARD

MEMORY MEMORY

OUR GOAL IS TO BEAT OUR COMPETITORS' PRICES
CALL US LAST AND RECEIVE A SPECIAL DISCOUNT

POWER PC, CENTRIS, QUAD, LCIII, PERFORMA
72PIN (SIMM)

70ns		60ns	
4M/8M	$114/238	4M/8M	$122/242
16M/32M	$439/928	16M/32M	$490/930
64M	$2095	64M	$2190

VRAM 256/512 $19/34

POWER PC 9500,7500,7200 (DIMM)

70ns		60ns	
4M/8/16	$155/256/480	4M/8/16	$158/263/496
32M/64	$1080/2235	32M	$1110
		128M	$4710

VRAM 1MB $89

520,520C,540,540C
4M/8/16 $172/318/605
24M/32 $1029/1160

ALL 100 SERIES
4M/8/10/12/14 CALL

CACHE
PERFORMER/POWER PC
256K $135 512K $289
7200/7500/8500/9500
256K $260 512K $379

ALL DUO'S
4M/8/12 $169/324/470 14M/20/28 $555/ 789/ 1160

H.B.R. ENTERPRISES
11628 SANTA MONICA BLVD #201, LA. CA 90025
TEL (800)427-2021 FAX (310)826-2573
INTERNATIONAL (310)826-3363
E-Mail hbrcomp@ix.netcom.com
UNIVERSITY, SCHOOL, GOVERNMENT, FORTUNE 500,1000 P.O.'S WELCOME
7:30 AM 6:00 PM MON-FRI 10:00 AM 3:00 PM SAT
Prices subject to change. Limited availability.Return items subject to approval and restocking fee.

CIRCLE 452 ON READER SERVICE CARD

NEW! REVOLUTIONARY MEMORY UPGRADE SOFTWARE

With OptiMem RAM Charger you open more applications and documents, on any Mac running System 7—even if memory is also expanded by VM or RAM Doubler.™

Check out all of the rave reviews:

MACWORLD MW ★★★★★ — *"The Mac OS ought to work this way already. Until it does, there's OptiMem RAM Charger."* MacWorld

MacWEEK ◆◆◆◆ — *"...offering much better ease of use, greater control over individual applications' memory parameters and an overall improvement in reliability."* MacWEEK

MAC HOME JOURNAL 🍎🍎🍎🍎 — *"...memory errors occurred far less frequently ...had a stabilizing effect on the operating system."* Home Office Computing

Mac Choice — *"...should be part of the system software."* MacWEEK

Home Office ★★★★ of 4 — *"OptiMem RAM Charger is the steal of the year."* MacSense

FREE Trial
Try it on your Mac for 7 days. Download the free demo from http://www.wp.com/jump, CompuServe (Go CIS:MAC-14), or AOL (Utilities). Or, for only $4.95, we'll mail you a disk. To order in the US call **800-JUMP-MAC**
Call 412-681-2692 outside US or for tech info.

Jump Development Group
1228 Malvern Ave, Pittsburgh, PA 15217
E-mail: JumpDevGrp@aol.com
http://www.wp.com/jump

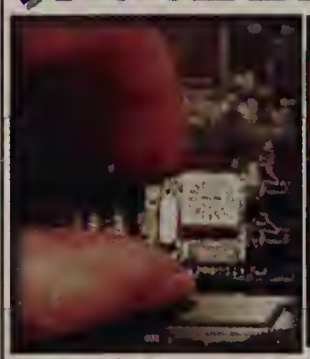
Fax: 412-681-2163
Tech Questions & Sales: 412-681-2692
Recorded & Fax-back Info: 412-681-0544
US Sales: 800-JUMP-MAC (586-7622)

OptiMem RAM CHARGER

NOT JUST MORE RAM, MORE POWER WHERE YOU NEED IT.

CIRCLE 407 ON READER SERVICE CARD

POWERMAC ACCELERATION



6100, 7100, Performa 611x, 8100/100

- 16 dial-selectable speeds
- Low noise, high output CPU fan
- Detailed manual
- Bench testing software disk
- Requires NO expansion slots
- Installs in under 5 minutes
- NO permanent modification
- Toll-free technical support
- 30-day money-back guarantee
- 1-year warranty

6100 up to 90MHz
Performa 611x up to 90MHz
7100/66 up to 90MHz
7100/80 up to 93MHz
8100/100 up to 126MHz

$19.95

Do not be misled. With thousands sold, accept only

Nothing beats the Equalizer. NOTHING! Get the best and forget the rest.

L2 CACHE CARDS

6100/7100/8100/Performa 611X
256K.....$125
512K.....$259
1024K.....as low as $299

7200/7500/8500
256K DIMM Cache.....$150
512K DIMM Cache.....$255

DVC Equalizer for 9500/8500

- 32 dial-selectable speed settings
- Protection circuit prevents installation damage
- LED light indicates correct installation
- NO permanent modifications
- Requires NO expansion slots

UP TO 175MHz $19.95

7200/7500/8500 VRAM 1Mb.....$75
DIMM Saver/R (SIMM to DIMM converter)...$49

VISA

800.889.5137 DVC HARDWARE™
417.889.5113 Phone 417.889.7980 Fax
E-Mail:DVCBOOSTER@AOL.COM
FedEx

CIRCLE 436 ON READER SERVICE CARD

PERIPHERAL

PERIPHERAL OUTLET, Inc.

800/259-6565

SAVE MONEY!
Peripheral Outlet will buy your old memory at great prices.

PowerBook 5300/190 Memory

4 Megabyte upgrade	175.00
8 Megabyte upgrade	305.00
16 Megabyte upgrade	589.00
32 Megabyte upgrade	1197.00
40 Megabyte upgrade	CALL
48 Megabyte upgrade	CALL

PowerMac Accelerators

Call us for ways to economically increase the speed of any PowerMac by 30-40%!

PowerBook 500-series Memory

4 Megabyte upgrade	159.00
8 Megabyte upgrade	319.00
16 Megabyte upgrade	589.00
24 Megabyte upgrade	959.00
32 Megabyte upgrade	1179.00

All PowerBook memory upgrades include necessary tools, static protection, and instructions for safe installation.

Duo-series Memory

4/8 Megabyte upgrade	169/289
12/14 Megabyte upgrade	440/496
20/28 Megabyte upgrade	699/989

Video RAM

1 MB VRAM for 7200/7500/8500	79.00
2 MB VRAM for ATI Video Card	199.00
256K/512K VRAM 80ns	21/29

Cache Cards, Etc.

Cache Cards for 7200/7500/8500	CALL
256K/512K/1 MB Cache Cards for PowerMacs	CALL
128K Cache Card for Quadras	from 125.00
128K Cache Card for LCIII & Performa 450	129.00
IIci/IIsi 64K Cache Card	125/159
Slot-Free Cache Card for LC 475	195.00
Slot-Free Cache for 660AV, 700, 900, 950	245.00

PowerBook 100-series Memory

2, 4, 6, 8, and 10 Megabyte Upgrades

Call for Best Prices!

168 pin DIMMs for PCI Macs

8 Megabyte
16 Megabyte
32 Megabyte
64 Megabyte
128 Megabyte

Prices Changing – Call for the Best Prices!

72 pin Memory for the Mac

	80ns	70ns	60ns
4 Megabyte			
8 Megabyte			
16 MB-Non Composite			
32 MB-Non Composite			

Prices Changing – Call for the Best Prices!

Standard 30 pin SIMMs

1, 2, 4, 8, and 16 Megabyte SIMMs

Prices Changing –Call for Best Prices!

68882 Math Coprocessors

68882 25 MHz FPU	49.00
68882 33 MHz FPU	59.00
68882 50 MHz FPU	99.00
25 MHz for Mac LC/LCII/Classic II	55.00
20 MHz w/2 slots for Mac IIsi	119.00

Newton Upgrade Products

Static RAM Storage Cards

512K/1MB/2MB	89/124/235

Flash Storage Cards

2MB/4MB	99/169
8MB/16MB	299/565

Miscellaneous

68040 processors with FPU	CALL
LaserWriter 320 2,4,6MB upgrades	CALL
LaserWriter Pro 810 4MB/8MB upgrades	255/419
T.I. MicroLaser 1 MB	39.00
Mac Classic 1 MB Board	75.00
68851 16MHz PMMU	89.00

if requested, MODE 32 software included free w/PMMU

Mac Portable 3-7 MB Cards	CALL

TOLL FREE TECH SUPPORT

Our installation instructions and tech support are the best in the industry!

LIFETIME WARRANTY on all memory products.

Order by 6:30 PM CST for same day shipping.*

Overnight delivery from $8.00!

*some restrictions apply

50 MHz Accelerator $339

MacUser ★★★★½

Speed increases of up to 400% with the DiiMOCache 50MHz 68030 Accelerator. The DiiMO outperforms not only DayStar's PowerCache 50MHz but also most of the 68040 25MHz accelerators. The DiiMOCache 50MHz runs on the LC, LCII, LCIII, II, IIx, IIcx, IIci, IIvi, IIsi, SE/30, and the Performa 600 and Performa 400 series. Call for adapter prices.

DiiMOCache 50MHz Accelerator ..... $339.00 DiiMOCache 50MHz w/FPU $399.00

68040 Processor w/FPU $229

For the Centris and Quadra 605, 610, 650 and 660AV, and the Performa 475/476 and LC 475.

33MHz for Quadra 650 and LC 575	CALL
40MHz	CALL

PERIPHERAL OUTLET, Inc.

327 East 14th, PO Box 2329 • Ada, Oklahoma 74820
405/332-6581 FAX 405/436-2245 AppleLink-PERIPHERAL
Internet-sales@peripheral.com
HOURS: Monday–Thursday 6AM-7PM CST, Friday 6AM-6PM

We accept Visa/MC/Amex/Discover, and COD Cashiers check upon approval. Educational, Government, and Fortune 500 P/Os accepted upon approval.

Due to volatility in the market all prices and availability are subject to change without notice.

CIRCLE 454 ON READER SERVICE CARD

Mac Xtra Discounts

CALL FOR OUR FREE CATALOG!

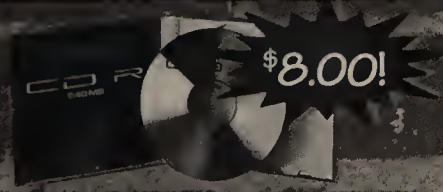
FAX your order!
206-746-5324

1-800-553-4230

International:
206-746-3803

MEDIA

SYQUEST
EZ135MB SYQUEST CARTRIDGE $19
EZ135MB SYQUEST CART. -10 PK. . $180
44MB SYQUEST CARTRIDGE 40
88MB SYQUEST CARTRIDGE 45
105MB SYQUEST CARTRIDGE 52
200MB SYQUEST CARTRIDGE 73
270MB SYQUEST CARTRIDGE 56
VERBATIM
3.5" 128MB OPTICAL 21
3.5" 230 MB OPTICAL 28
RECORDABLE CDROM 74MIN/640MB 8
RECORDABLE CDROM 74MIN/640MB-10 PK. 73
VERBATIM 2SDD 3 1/2 10PK DISK 7.50
VERBATIM 4MM/60M DATA CART 7
VERBATIM DATA 4MM DC 29S FT 9
VERBATIM DATA 8MM DC 367 FT 7
VERBATIM DC 2120 120MB OIC80 ..... 12.50
VERBATIM EP-S HIGH YIELD TONER 60
VERBATIM EP-N TONER CART 89
VERBATIM EP-L TONER CART 59
VERBATIM ANTI-GLARE FILTER 14/15" 33
IOMEGA ZIP
ZIP 100 MB CARTRIDGE 19.50
ZIP 100 MB CARTRIDGE - 10- PACK 139
ZIP 100 MB CARTRIDGE - 3- PACK 45
IOMEGA JAZ
JAZ 1GB CARTRIDGE 123
JAZ 1GB CARTRIDGE - S PACK 490
JAZ 540MB CARTRIDGE 69
JAZ 540MB CARTRIDGE - S PACK 294
TDK AUDIO PRODUCTS
120 MIN. HIGH STANDARD 2.50
120 MIN. EXTRA HIGH 3.25
120 MIN. HI-FI GRADE 3.50
120 MIN. SUPER-VHS 6.90
30 MIN. EXTRA HIGH VHS-C 3.99
120 MIN. 8 MM HIGH STANDARD 4.25
120 MIN. 8 MM EXTRA HIGH 4.75
120 MIN. HI-8 METAL EVAPORATE 13.99
SONY BATTERIES
D2 PACK 2.99
C2 PACK 2.99
AA 2 PACK 2.49
120 MIN HIGH GRADE / 4 PK 5.90/20
120 MIN HI-8 METAL PART/4 PK. 8.99/34
SONY VHS TAPES
120 MINUTE $3.00
120 MINUTE 4 PACK $11
160 MINUTE $3.50
120 MINUTE SUPER 8.50
160 MINUTE SUPER 10
SONY CD-RECORDABLE
RECORDABLE CDROM 74MIN/640MB 8
RECORDABLE CDROM 74MIN/640MB-10 PK. 73
SONY BETA TAPES (LIMITED AVAILABILITY!)
500 / 750 METER LGTH ..... 3.50 / 3.50
750 METER LGTH HIGH GRADE 4.00
500 METER LGTH METAL 15.99
CABLES
POWERBOOK TO HARD DRIVE CABLE 37
MODEM CABLE 6'PLUS/SE/II 7
SCSI CABLE M50-50 6' CABLE 19
SCSI M50-M50 18 CABLE 9
SCSI TERMINATOR 15



MODEMS

GLOBAL VILLAGE
TELEPORT PLATINUM 28.8 V.34 ..... $203
POWERPORT 1XX PLATINUM 28.8 V.34 337
POWERPORT PLATINUM PC CARD 28.8 ... 349
POWERPORT PLATINUM PC CARD PRO ... 519
US ROBOTICS
US ROBOTICS 28.8 V.34 INTERNET BUNDLE 209
US ROBOTICS 14.4 EXT 117
ZOOM
ZOOM 2400 BPS MODEM 65
ZOOM V.FAST 28.8 189
ZOOM VFX 14.4 V.32BIS S/R FAX 169
ZOOM VFXV 14.4 V.32BIS W/VOICE 148
ZOOM 14.4 EXTERNAL S/R V.42 79
SUPRA
SUPRAEXPRESS 28.8 EXT V.34 160
SUPRA 14.4 EXPRESS 98
SUPRA 28.8 PB FAX/MODEM 187
SUPRA 28.8 V.34 S/R FAX MODEM 222

MONITORS/VIDEO

MONITORS
SUPERMATCH PRESSVIEW 21T $3249
SUPERMATCH 21TXL 2245
RADIUS PRECISION VIEW 17" 1005
PRECISION COLOR PIVOT 875
PRECISIONCOLOR 17 RADIUS 1095
INTELLICOLOR 20E 2189
NEC MULTISYNC XV14/15/17 ..... 349/479/839
NEC MULTISYNC XE15/17/21 ... 599/1099/1969
NEC MULTISYNC XP17/21 ..... 1149/2379
VIDEO
PRECISIONCOLOR PRO 24X NUBUS 1165
PRECISIONCOLOR PRO 24XK NUBUS 825
THUNDER IV GX-1360 RADIUS 1875
THUNDER IV GX-1152 RADIUS 1635
THUNDER IV GX-1600 RADIUS 2040
RADIUS THUNDER 24 GT 490
SPIGOT POWER AV 820

ACCELERATORS

DAYSTAR
POWERPRO 601 80MHZ W/RAM CACHE . $1441
POWERPRO 601 100MHZ W/CACHE 1231
TURBO 040 40MHZ W/CACHE 679
TURBO 040I 33MHZ W/CACHE NO FPU 605
TURBO 601 66MHZ FOR IICI, IISI W/ADPT .. 851
TURBO 601 66MHZ IIVX, IIVI, P600 851
TURBO 601 100MHZ FOR IICI, IISI W/ADPT 1165
TURBO 601 100MHZ IIVX, IIVI, P600 1165
POWERCARD 601 100MHZ - *NEW!* 946
SONNET TECHNOLOGY
QUAD DOUBLER 40MHZ
CENTRIS 610 233
QUAD DOUBLER 40MHZ W/FPU
CENTRIS 610 339
QUAD DOUBLER 50MHZ W/FPU
QUADRA 610 387
QUAD DOUBLER 50MHZ W/FPU
CENTRIS 650 387
QUAD DOUBLER 50 MHZ
CENTRIS 660AV/7/900 387
BUDGET BOOSTER 25MHZ
MAC LC 94
PRESTO 040 LC 50/25MHZ
MAC LC/LC II/PERF. 400,405,410,430 ... 193
PRESTO 040 LC 50/25MHZ W/FPU
MAC LC/LC II/PERF. 400,405,410,430 ... 290
PRESTO 040 80/40MHZ
MAC IICI 290
PRESTO 040 80/40MHZ W/CACHE
MAC IICI 387
PRESTO 040 80/40MHZ W/FPU
MAC IICI 398
PRESTO 040 80/40MHZ W/CACHE, FPU
MAC IICI 485

MEMORY

What type of Memory do I need?

Standard 30-Pin Simms:
Plus, SE, SE30, Classic/II/Color, LC./LCII, Perf. 200/400-430/600, Q.900/950, Mac II, IIx, IIcx, IIsi, IIci, IIfx, IIvx, IIvi.

Standard 72-Pin Simms:
Q.605/630, 610, 650, 700, 800/840AV, LCIII/475/630, Perf. 450-560/575 and 6115CD, PMac 61/71/8100, WS 80, WS60, WS 95, WS 6150 and WS 81/9150.

168 Pin Dimms:
PowerMac 9500, 8500, 7500, 7200

As Low As $30!

STANDARD 30-PIN SIMMS
1MB 100NS $30
1MB 80/70NS 31/33
2MB 80/70NS 65/73
4MB 80/70NS 112/133
8MB 70NS 320
16MB 70NS 585
30-PIN , 36 BIT PC SIMMS
1MB 70NS $42
4MB 70NS 155
4MB PAL SIMMS FOR II,IIX
4MB 80/70NS $138/140
64-pin SIMMs for IIfx
1MB 80/70NS $38/38
4MB 80/70NS 152/154
8MB 70NS 319
16MB 70NS 653
72-PIN SIMMS
4MB 70/60NS $100/110
8MB 70/60NS 194/228
16MB 70/60NS 415/446
32MB 60NS 859
72-PIN, 36 BIT PC SIMMS
4MB 70NS $147
8MB 70NS 337
16MB 70NS 475
32MB 70NS 1220
168-PIN DIMMS
4MB 70NS $137
8MB 70NS 224
16MB 70NS 440
32MB 70NS 892
64MB 70NS 1832
PB 5300 SERIES
8MB RAM 290
12MB RAM 543
16MB RAM 569
32MB RAM 1157
PB 190 SERIES
4MB 70NS $207
8MB 70NS 304
12MB 70NS 507
16MB 70NS 599
32MB70NS 1199

Supra Express 28.8 Plus $160!

PB500 SERIES
4MB RAM $153
8MB RAM 291
16MB RAM 565
32MB RAM 1113
PBDUO 210/230 SERIES
PB DUO-4MB $165
PB DUO-8MB 297
PB DUO-12MB 473
PB DUO-14MB 543
PB DUO-20MB 777
PB DUO-28MB 1161
FPU'S/MATH COPROCESSOR/VRAM/CACHE
CENTRIS FPU 25MHZ $186
FPU 33MHZ DUO/P600 51
FPU COL. CLASSIC 16MHZ 42
LC575 33MHZ MTH COPROC 233
POWERMAC 6100, 7100, 8100 VRAM/CACHE
256K 80NS VIDEO RAM $17
512K VIDEO RAM 22
256K CACHE PM 6100, 7100 105
512K CACHE PM 6100, 7100 279
1MB CACHE PM 6100, 7100 789
POWERMAC 72/75/85/9500 VRAM/CACHE
1MB VRAM 7200/7500/8500 65
2MB VIDEO RAM PM9500 227
256K CACHE DIMM 176
512K CACHE DIMM 299
POWERBOOK BATTERIES
PB 100 BATTERY/CHARGER 44/111
PB 140-180C BATTERY 57

DRIVES

APPLE EXTERNAL DRIVES
APPLE 850MB 339
APPLE 1.0GB 409
APPLE 2.0GB 925
QUANTUM DRIVES
Q1080 EXTERNAL FIREBALL 345
Q540MB EXTERNAL FIREBALL 259
Q850MB EXTERNAL TRAILBLAZER 279
Q CAPELLA 2.2GB 759
Q GRAND PRIX 4.2GB 8.6MN 1049
SYQUEST
SYQUEST EZ135 W/CARTRIDGE 225
EZ135MB CARTRIDGE 19.50
IOMEGA DRIVES
ZIP DRIVE/100MB ZIP CARTRIDGE 199/19
JAZ 1.0GB DRIVE/1.0GB CARTRIDGE .. 605/123
FWB
2X CD RECORDER/WRITER 1475
4X CD RECORDER/WRITER 3015
NEC
6XE MULTI-SPIN CD-ROM DRIVE 515
RUMI SYQUEST
RUMI 88MB SYQUEST W/CART 369
RUMI 105MB SYQUEST W/CART 314
RUMI 200MB SYQUEST W/ CART 479
RUMI 270MB SYQUEST W/CART 479
PINNACLE
APEX 4.6GB OPTICAL DRIVE 1575
RCD 1000 W/10 RECORDABLE CD'S 1295
RCD 5040 1250

RUMI 270MB $479!

040/40MHZ $679!

NETWORKING

FARALLON
ETHERWAVE NUBUS OR LC 184
ETHERWAVE AUI TRANSCEIVER 104
ETHERWAVE AAUI TRANSCEIVER 104
ETHERWAVE PRINTER ADAPTER 179
ETHERMAC LC-C 158
DAYNA
DAYNAPORT CS-T (10BASE-T) $79
DAYNAPORT CS-T S PAK (10BASE-T) 360
DAYNA MINI-HUB F-T 122
DAYNAPORT E/II - T NUBUS 10-T 105
ASANTE
MACCON + 610E ENET THICK/10BASE-T ... 169
MACCON+ 610 THICK/THIN/10BASE-T 197
MC+610E CENTRIS TH/TN 189
FRIENDLY NET ADAPTER THIN 55
FRIENDLY NET ADAPTER THICK 69
10-BA5E-T HUB WITH 8THIN PORT 145

Overnight Delivery $7 and up
Prices Subject to change without notice
UPS Ground $6 and up
Returns Subject to Approval & Restocking Fee
MasterCard, VISA & Discover, no surcharge
Office Hours: M-F, 7am to 6pm; Sat., 9am to 4pm, PST
MAC Xtra 1075 Bellevue Way NE, Suite 114 Bellevue, WA 98004 - Phone (206) 746-3803
WD0496

CIRCLE 561 ON READER SERVICE CARD

Dynamic Engineering

PB & Duo Accel
PB500 FPU
Portable Upgrades
MEMORY, HDD, FAX, BATTERY
POWERBOOK 100 BATTERIES
435 Park Dr., Ben Lomond, Ca. 95005
Fax 408-336-3840
DSCVR VISA/MC AmEx
(408) 336-8891
CIRCLE 411 ON READER SERVICE CARD

MEMORY

GUARANTEED LOWEST PRICES
Memory for Desktops, Laptops, Laser Printers from Apple to Zenith
WE BUY EXCESS MEMORY
1-800-808-6242
ERITECH INTERNATIONAL
818/244-6242 FAX 818/502-5059
740 N. Glendale Ave., Glendale, CA 91206
CIRCLE 469 ON READER SERVICE CARD

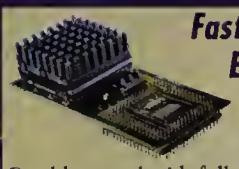
BEST BUYS TO RUN YOUR MAC FASTER

Accelerate Your Mac II Series & LC/LC II to 68040 Speed

Sonnet Presto 040 80/40 MHz accelerators increase Mac IIci/IIsi series performance to 600%. Run an LC/LC II 2.5x as fast with the Presto 040 LC 50/25 MHz card. System 7.5 compatible. Use PDS slot.

		w/FPU
Presto 040 LC, LC II	$199	$299
Presto Mac IIci, IIsi*	$299	$399
Presto with 128K cache	$399	$499

*Adopter req'd $49



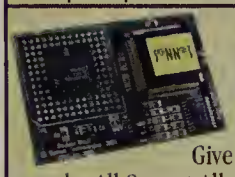
Fastest Quadra Ever! Plug in a 100/50 MHz 68040 Board

Double speed with full compatibility. Works in Quadra/Centris 610, 650, 660AV, 700, 900. 80/40MHz unit for Centris 610.

80/40 MHz....$249 w/FPU....$349
100/50 MHz w/FPU....$399

Power Mac Cache!

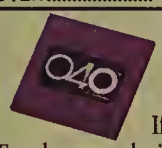
	6100/7100 SIMM	7200/7500/8500 DIMM
256K	$99	$150
512K	$238	$255



A Fast 68030 Gives Your Older Mac New Life

Give your older Mac more muscle. All Sonnet Allegros come equipped with a speedy 68030. Some units also have an FPU, cache &/or additional SIMM slots.

25 MHz Classic	1x72pin SIMM slot	$199
33 MHz SE	4x30pin SIMM slots	$199
33 MHz Mac II	Supports RAM Doubler	$189
33 MHz Mac IIx	Plugs into CPU socket	$189
33 MHz LC II	Incl. FPU & 16K cache	$149
33 MHz Color Classic	Incl. FPU & 16K coche	$149
NuBus Adapter 660AV/Mac IIsi		$99/$149



Math Coprocessors for 68040 Macs

If you use graphics, CAD, Excel, or rendering programs, you will speed through applications like never before.

25 MHz	Q605, C/Q610, C650, LC475, P47X	$149*
33 MHz	LC575, LC630, P57X, P63X	$199*
33 MHz	PB190, PB52X, PB54X, Duo 280	$399

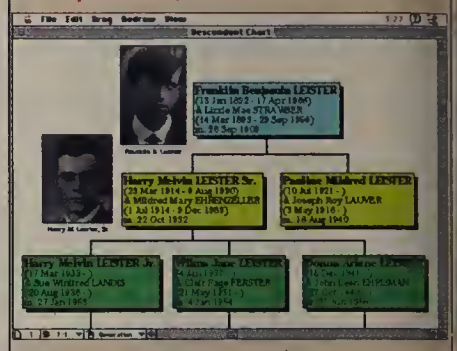
* with LC040 exchange. 68882 upgrades from $49.

SONNET TECHNOLOGIES, INC., 18004 Sky Park Circle
Irvine, California 92714, 714-261-2800 Fax 261-2461
Gov't./Corp./Education P.O.
E-Mail: Sales@Sannettech.com
800-786-6260
CIRCLE 463 ON READER SERVICE CARD

REUNION®

the family tree software

Rated best by MacWorld, MacUser, Computer Life, and Mac Home Journal!



Reunion organizes your family information and images, creates large graphic tree charts — perfect for family gatherings! — prints family group sheets, questionnaires, indexes, calendars, family histories, custom reports, and mailing lists. Reunion also links and displays pictures, shows how you're related to others, calculates life expectancies and the day of the week you were born, records sources, provides custom fields for information unique to your research, imports and exports data, and much more. Free demo version on America Online and CompuServe.

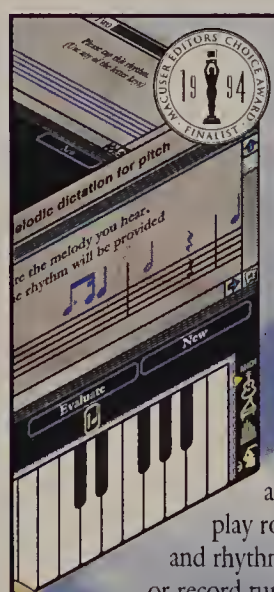
Call MacConnection to order: 1-800-334-4444

For a free brochure and sample printouts, contact:
MacUser 4½
Leister Productions
P.O. Box 289, Mechanicsburg, PA 17055
Phone 717-697-1378 *Fax* 717-697-4373
CompuServe 74774,1626 *America Online* LeisterPro

1x32	4MB	72 Pin	$110
2x32	8MB	72 Pin	$220
4x32	16MB	72 Pin	$420
1x8	1MB	30 Pin	$30
4x8	4MB	30 Pin	$110
16x8	16MB	30 Pin	CALL
256K VRAM			CALL
512K VRAM			$25
1MB VRAM			$95
2MB VRAM (ATI)			CALL

COMPUTiX
3480 W. Warner Ave Ste. E, Santa Ana, CA
ORDER (800)516-3667
Tel: (714) 540-5131 Fax: (714) 540-5139
CIRCLE 419 ON READER SERVICE CARD

Practica Musica™ 3



Your personal music tutor now includes rhythm tapping, chord progressions, and many other exciting new features. More than ever the most complete music training package available. $140

A LITTLE Kidmusic™

NEW! Fun music learning and entertainment for kids. Tap keys to play with automatic accompaniment, play rounds, learn pitch and rhythm notation, write or record tunes. Expandable library of traditional songs. $75

ARS NOVA • (206) 828-2711 • (800) 445-4866
FAX (206) 828-2132, http://www.ars-nova.com

Songworks™

Not only prints your song, but helps you write it! Suggests tune and harmony ideas, plays, prints melody, chord symbols, lyics– with or without MIDI. Song files compatible with *A Little Kidmusic* and *Practica Musica*. $125

CIRCLE 484 ON READER SERVICE CARD

ONLINE BIBLE CD or Disk

FAST, POWERFUL, EASY TO USE

Deluxe CD.....$90 NIV•NASB•NKJV•NRSV• plus all items on Classic CD

Classic CD.....$40 KJV w/Strongs + 9 other versions • 20 Study Aids (Grk &Heb., Lexicon, X-Refs., Topics, Dict., Commentaries) • Text and Study Aids in other languages

"...the standard by which all others are judged." — MACHOME JOURNAL 8/94

ASK ABOUT OUR OTHER PRODUCTS FOR THE CHRISTIAN COMMUNITY
800-554-9116
603-927-4508
By The Numbers, Inc.

MUSIC for the MAC

We sell the full range of music products for the Mac.

Best prices and customer support in the business!

Mac BEAT®
1314 Rufina Cr. Ste. #A4
Santa Fe, NM. 87501

FREE CATALOG
Info: 505-473-3434
Fax: 505-473-4647

1-800-MAC-BEAT
CIRCLE 424 ON READER SERVICE CARD

GRAPHIC ASTROLOGY

CALL FOR A FREE CATALOG
1-800-827-2240
TIME CYCLES RESEARCH
175 Willetts Avenue Waterford, CT 06385 USA
(860) 444-6641 • Fax (860) 442-0625
E-Mail; TimeCycles@aol.com

Student - Teacher & School Discounts!

LATEST VERSIONS & FULL PACKAGES

QuarkXPress 3.32 $299

Freehand 5.5 $189

Authorware Pro 3.0 $975

Painter 4.0 $229

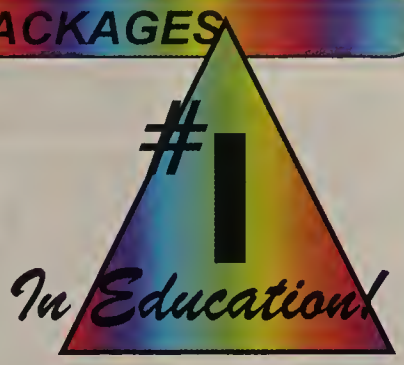
Kai's Power Tools 3.0 $85

Director Multimedia Studio

INCLUDES:

- -Director 4.04 for Mac/Pmac
- -Extreme 3-D
- -Painter 4.0 for Mac/Pmac
- -Sound Edit 16 2.0

$1175



MINICAD 6 $319

Director 4.04 $589

Infini-D 3.1 $249

Strata Studio Pro 1.7.5 $495

Wacom ArtZ II 6x8 $285

4TH Dimension 3.5	$499
Accura 144 & Fax 144	$119
Action 1.04	$99
Alias Sketch! 2.02	$249
Alien Skin Texture Shop	$49
American Heritage Dict Dlx	$75
Archicad 4.5.5 Student	$495
Artist in Residence	$89
Astound 2.0	$119
Autocad 12	$199
Blueprint 5	$149
Cameraman	$49
Canvas 3.5.2	$149
Chem Draw Pro 3.5	$149
Chem Office Pro 3.1	$299
Claris Draw 1.0	$129
Claris Works 4.0	$89
Clip Media II	$139
Coda Finale 3.5	$249
Code Warrior 8	$129
Collage 2.0.1	$149
Conflict Catcher III 1.0	$59
Cricket Draw III 2.01	$79
Cricket Graph III 1.5.3	$79
Datadesk 5.0	$329
Debabelizer Toolbox 1.6.5	$219
Deck II 2.5	$199
Deltagraph Pro 3.5	$95
Design Workshop 1.2	$249
Digital Box Office Bundle	$449
Digital Chisel 2.0	$99
Director Multimedia Stud1.5	$1175
DrawTools 1.0	$79
DiskGuard	$75
DrawingSlate II 12x12	$219
Elastic Reality 1.2	$149
Electric Image 2.5 Student	$749
Encore 4.0.4	$249
Extreme 3-D	CALL
Fast Track Schedule 4.0	$139
Filemaker Pro 3.0	$129
Final Draft 3.0	$125
Fontographer 4.1	$169
Form Z 2.7.5	CALL
Fractal Dabbler 2.0	$49
Fractal Poser 1.0	$99
Framemaker 5.0.1	$399
FaxPro 1.5.3	$49
Fileguard	$119
German Power Translator	$99
Hard Disk Toolkit 1.8	$109
IdeaFisher Pro 6.0	$75
Impact 2.0	$65
Inspiration 4.1	$89
Instant Replay 1.0	$75
Intellihance 2.0	$79
Jag II	$65
JMP 3.1	$329
KPT Bryce 1.0	$85
KPT Convolver 1.0	$85
KPT Power Photos Vol 1 or 2	$85
KPT Vector Effects 1.0	$85
Live Picture 2.0	$519
Logomotion 2.0	$75
Lotus 1-2-3 1.1	$99
M.Y.O.B. 6.0	$49
M.Y.O.B. 6.0 With Payroll	$90
MacAcad Tutorial Videos	$35
Mac Draft 4.2	$199
Mac Project Pro 1.5	$179
MacLink Plus PC Connect	$129
Master Trax Pro 6.0	$79
Mathcad 3.1	$69
Mathematica 2.2.2 Student	$149
Media Paint 1.1	$249
Minitab Release 10XTRA	$199
M Power 2.5	$149
Nisus Writer 4.1	$139
Nisus Writer 4.1 W/LangKey	$199
Now Bundle 3.5	$69
Now Utilities 5.0.1	$59
Okidata OL410E/PS Printer	$765
OmniPage Pro 5.0 Bundle	$209
PageTools 2.0	$79
Paint Alchemy 2.0	$89
Passport Alchemy 3.0	$279
Pixar Showplace 2.2	$149
Pixar Typestry 2.1.1	$135
Phototones Alphabets	$129
Power FPU	$75
Precision View 17" Monitor	$899
Quickeys 3.01	$85
QX-Tools 1.0	$79
Radius 8100/110MHZ 730 MB	$2249
Ram Doubler 1.6	$55
Ram Doubler/Speed Doubler	$95
Ray Dream Designer 4.0	$99
Ray Dream Studio 1.0	$219
SigmaPlot 4.1	$199
Sound Edit 16 2.0	$189
Speed Doubler 1.1	$55
Spigot Power AV	$779
Story Board Artist 1.5	$229
Strata Vision 3-D 4.0	$179
Supercard 2.5	$229
Soft PC 3.0	$89
SoftWindows 2.0	$249
Teleport Platinum 28.8	$199
Terrazzo 1.5	$89
Texturescape 2.0	$85
The Black Box 2.0	$75
Three X Five 2.0	$59
TopDown Flowcharter 4.5	$169
Trackman	$75
Transjammer Vol 1or 2	$59
TurboCad 3-D	$179
Up-Front 3-D 2.0.1	$99
Vellum 3-D 2.7	$595
Video Director 2.0	$89
Video Fusion 1.6.1	$229
Video Vision Studio 2.0	$3599
VideoShop 3.0	$199
Virex 5.6	$60
Virtual Studio Suite	$1095
VistaPro 3.0	$75
Wacom Art Pad II 4x5	$139
Wacom Art Pad II w/Dabbler	$155
Wacom Art Z II 12x12	$425
Walkthrough Pro 2.5	$229
Word Perfect 3.5	CALL
XRES 1.2.1	$269

NOW CARRYING HARDWARE BY THE FOLLOWING....

- *Calcomp - Drawing Tablets
- *Wacom - Drawing Tablets
- *Global Village - Modems
- *Logitech - Scanners & Mice
- *Hayes - Modems
- *US Robotics - Modems
- *Supra - Modems
- *Radius - Monitors & Computers
- *Okidata - Printers
- *Sony - Monitors

- **SAME DAY SHIPPING ON MOST ITEMS.
- **ADOBE, SYMANTEC & MICROSOFT PRODUCTS AVAILABLE TO QUALIFIED STUDENTS, TEACHERS & SCHOOLS.
- **SCHOOL PURCHASE ORDERS WELCOME.
- **NO SURCHARGE ON CREDIT CARDS.
- **IBM & MAC PRODUCTS AVAILABLE.

CALL FOR FREE CATALOG!!
(800) 289-3275
INCLUDES COMPLETE PRICE LIST & FREE PRODUCT INF..

WE WILL BEAT ANY ADVERTISED PRICE!!

The SOFTWARE Source

1-800-289-3275

2517 Hwy. 35, Bldg. L
Manasquan, NJ 08736
(908) 528-0030
FAX (908) 528-9378
E-MAIL: SFTSWS@AOL.COM

CIRCLE 423 ON READER SERVICE CARD

MIDI by Mail
1•800•638•4280
CALL NOW FOR YOUR FREE CATALOG...
AND GET A FREE PASSPORT. CD-ROM!

SAVINGS UP TO 85% OFF!
- Hundreds Of Music Software Titles In Stock!
- Buying Power Of The Largest Music Retailer in The Country!
- Friendly Knowledgeable Staff!
- Overnight Delivery Available!
- Lowest Prices Guaranteed!

DON'T FORGET TO VISIT THE MOST COMPREHENSIVE MUSIC RELATED SITE ON THE WORLD WIDE WEB.....
http://www.musician.com
Guitar Center

HUNDREDS OF DEALS LIKE... MUSICTIME PLUS
- Instantly Create Beautiful Sheet Music!
- Play Your PC Keyboard Like A Piano!
- Includes Over 40 Children's Songs Ready To Play & Print!

List ~~$199.00~~
$29.99
PASSPORT.
SAVE $170

CIRCLE 414 ON READER SERVICE CARD

SOFTWARE PLUS

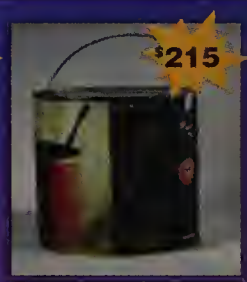
NEW! $289
QuarkXpress 3.32

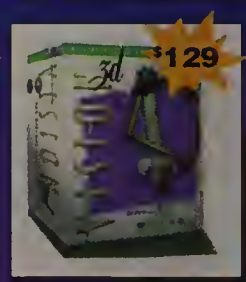
$189
AutoCAD Rel.12

$569
Director 4.04

$950
Authorware 3.0

$469
Strata Studio Pro 1.75


$215
Fractal Painter 4.0


$129
Strata Vision 3D

$169
Freehand 5.5

$315
MinCAD +6

Student/Teacher/School
Full Packages & Latest Versions
Academic Credentials Required

Desktop Publishing Bundle
QuarkXpress 3.3 or + any leading photo editing package + any leading illustration package $699
'Only' limited to what we offer.

Alias Sketch 2.0	$239
ArchiCAD 4.55	$495
Blue Print 5.0	$150
Coda Finale 3.5	$249
Collage 2.0	$149
Conflict Catcher 3	$59
Director 4.04 MP	$950
Elastic Reality 1.2	$139
Fontographer 4.1	$159
Form-Z 2.7	$950
FrameMaker 5.0	$385
Fractal Poser	$89
Infini-D 3.0	$235
Kai's PowerTools 3.0	$78
KPT Bryce 1.0	$78
Kpt Convolver 1.0	$78
Live Picture 2.0	$508
LogoMotion 1.5	$74
Mathematica 2.22	$145
Nisus Writer w/Lang. Key	$195
Norton Utilities 3.1	$89
Now Utilities 5.0	$59
Paint Alchemy 2.0	$84
Pixar Typestry 2.1	$125
Quickeys 3.0	$85
Soft Windows 2.0	$228
Sound Edit 16	$189
Strata Media Paint 1.0	$189
SuperCard 2.5	$228
TextureScape 1.5	$84
Virex 5.51	$59
Wacom Art Z 6x8	$285
WordPerfect 3.5	$89

*WE WILL BEAT ANY ADVERTIZED PRICE
Call for 100's of more titles.

SOFTWARE PLUS Academic Inc.
Info (201) 288-7441
Fax (201) 288-7442
splusacdem @AOL.COM
377 Rt.17 South Suite #116
Hasbrouck Heights, NJ 07604 •
Web address: http://tribeca.ios.com/~spai/index.html

SOFTWARE DISCOUNTS UP TO 80%

1-800-377-9943

CIRCLE 538 ON READER SERVICE CARD

Bible Book Store On Disk
Full Featured, Fast and Friendly Bible Study software. As the leader in Bible Study software since 1981 we have continued to listen to our customers and provide them with the tools they need. We offer the most comprehensive line of Bible study tools available.
Call for FREE catalog.
Bible Research Systems
2013 Wells Branch Pkwy #304
Austin, TX 78728
800/423-1228
512/251-7541

NEW AMERICAN STANDARD
The most literally accurate Bible...
...in the English language

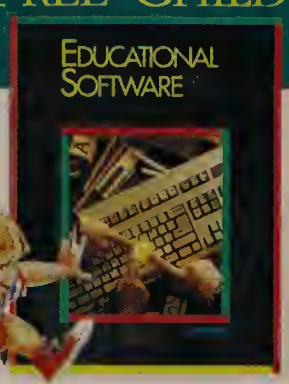
BIBLE MASTER™
For Windows™ & MAC®
Lockman Software

NEW Ask about our new BibleMaster Bundle for only $69.95 ~~$69.95~~

American Bible Sales
870 S. ANAHEIM BLVD. ANAHEIM, CA 92805
1-800-535-5131
The Standard of Biblical Excellence... NASB

CIRCLE 537 ON READER SERVICE CARD

FREE CHILDREN'S SOFTWARE CATALOG



Includes McGee®
NO WORDS
Software series!
1-800-421-4157
LAWRENCE PRODUCTIONS

CIRCLE 438 ON READER SERVICE CARD

FREE Software with every order!

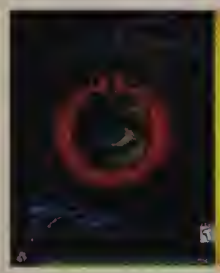
United CD ROM

CALL For A Free Catalog!

THE LARGEST SELECTION

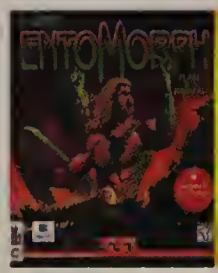
1-800-864-8334

Pax Imperia 2
by Davidson & Assoc.
Control every aspect of a civilization on the verge of entering the vast frontier of space. Create & maintain your galactic empire.
44438 **$44**

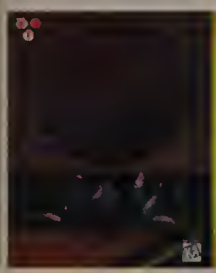


Shivers
by Sierra On-Line
You must spend a night inside a mysterious museum. Beware, for evil spirits are on the loose...and they're looking for you.
43174 **$36**

Allied General
by Mindscape
Choose to be an American, British or Russian General & battle the German army. Even bigger & better than Panzer General.
45189 **$41**



Entomorph
by Mindscape
You are stranded on a bizarre tropical island, where everyone is mutating into giant insects. You must get to the bottom of this!
47496 **$33**



PBA Bowling
by Bethesda Softworks
Get your ball & rack up the pins! Realistic bowling competition is now for the Mac. You'll think it's Friday night at the local lanes.
45534 **$27**

Links Pro
by Access
A true golfing experience. Features Harbour Town Golf Links, Banff Springs Resort course and many more!
44575 **$38**

Ultimate Doom
by GT Interactive
Full version of Doom plus a brand new Episode Four. Catch the fever and get your copy of the hottest game going.
47006 **$36**

Doom II
by GT Interactive
Filled with more gruesome & vicious bad guys & more devious level designs than the original.
40769 **$45**

Terminator Future Shock
by Bethesda Softworks
Based on the box office smash hit, "The Terminator." Future Shock pits you against a horde of 3D animated robots.
45537 **$43**

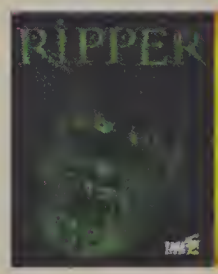
Havoc
by Reality Bytes
Command a Battlecycle, Hypertank or Hovercraft. Blast, jump or throttle past network opponents or challenge yourself.
45854 **$35**

Gabriel Knight 2
by Sierra On-Line
Intrigue, mystery and fate prevail in The Beast Within. Gabriel continues as a detective of the supematural.
45640 **$51**

5 Ft. MacPak
by Sirius Publishing
Essential for every Macintosh user. It's a great selection of games, personal productivity tools and educational CD-ROMs.
36218 **$27**

Casino Tournament of Champions
by Intracorp
Casino action with modem & network support. Choose the game, table limits & number of decks.
41284 **$35**

Mad Dog McCree II
by IBM
This action packed adventure will challenge your shooting skills by confronting banditos and Mad Dog's men.
41071 **$36**



Ripper
by Take 2 Interactive
Jack's back! In 2060, a vicious serial killer stalks the mean streets of New York and vanishes. Track him down!
45331 **$45**

Dungeon Master II
by Interplay
A gaming experience that will challenge you like nothing before. Amazing creatures and characters.
40435 **$35**

A-10 Attack
by Parsoft
Modem day warfare in the world's toughest, ugliest, airborne assault vehicle...The A-10 Warthog.
46543 **$44**

Outpost Cuba
by Parsoft
Adds new scenarios and missions to A-10 Attack. This new world is set in Cuba/Guantanamo Bay.
46544 **$30**

Braindead 13
by Readysoft
A bizarre comedy-horror-action-adventure game. Stop Dr. Neurosis' master plan... World Domination!
39607 **$36**

All Major Credit Cards Accepted

VISA MasterCard AMERICAN EXPRESS DISCOVER

FAX ORDERS: 1•217•352•9749
International Orders CALL 1•217•352•8737

ORDER AS LATE AS MIDNIGHT! SAME DAY SHIPPING**

Hours M-F 8 am – 12 midnight • Sat. 8 am – 5 pm • Sun. 12 Noon – 5 pm
(All times listed are CST)

** Orders received as late as 11 p.m. (CST) for 2nd day air. Call for other deadline times. Special offers, item availability and prices may vary according to format and are subject to change without notice. § While supplies last. All prices in U.S. dollars.

1-800-864-8334

1•800•UNITED4

OVER 800 TITLES AT CDADULT
1•800•CDADULT
1-800-232-3858

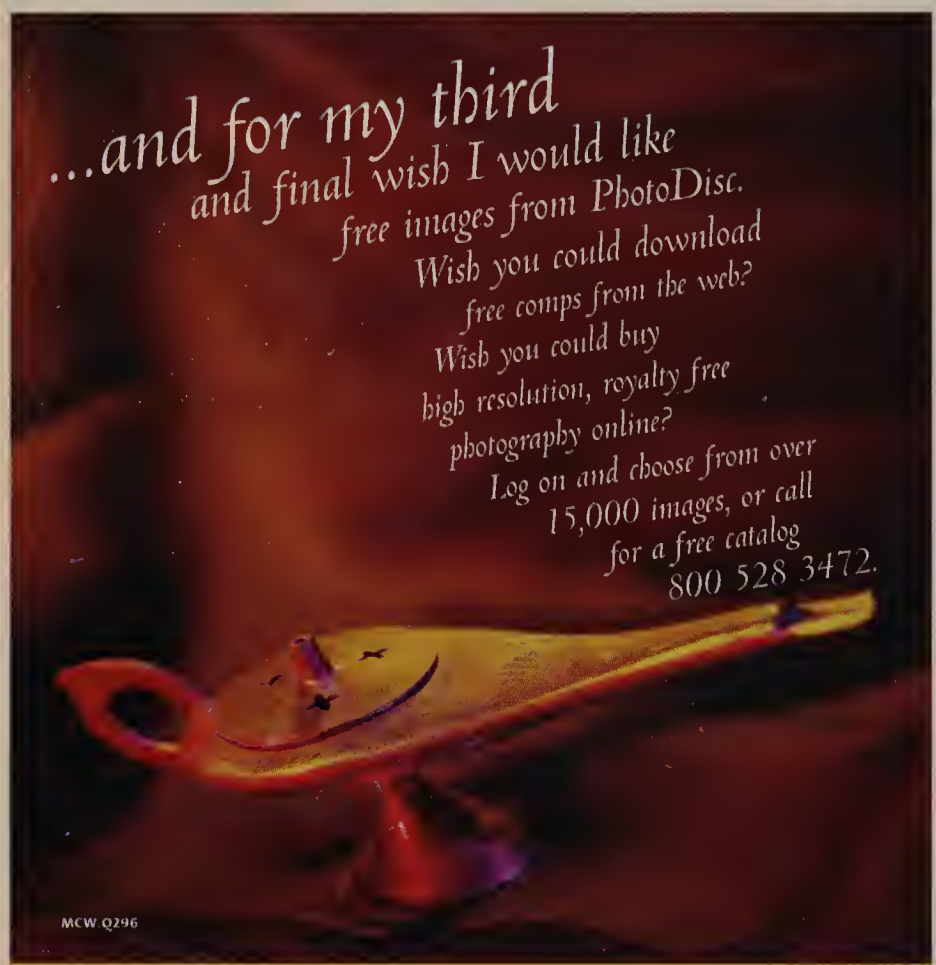
How Animals Move
by Discovery Channel
The most comprehensive and authoritative reference on animals in motion.
42299 **$30**

CODE 007

BBS: 1-217-352-9654
CompuServe: 76043,1605
America On-Line: UNITEDCD
UNITED CD ROM INFO via Fax back at 1•217•352•8123

CIRCLE 487 ON READER SERVICE CARD

Macworld SHOPPER®

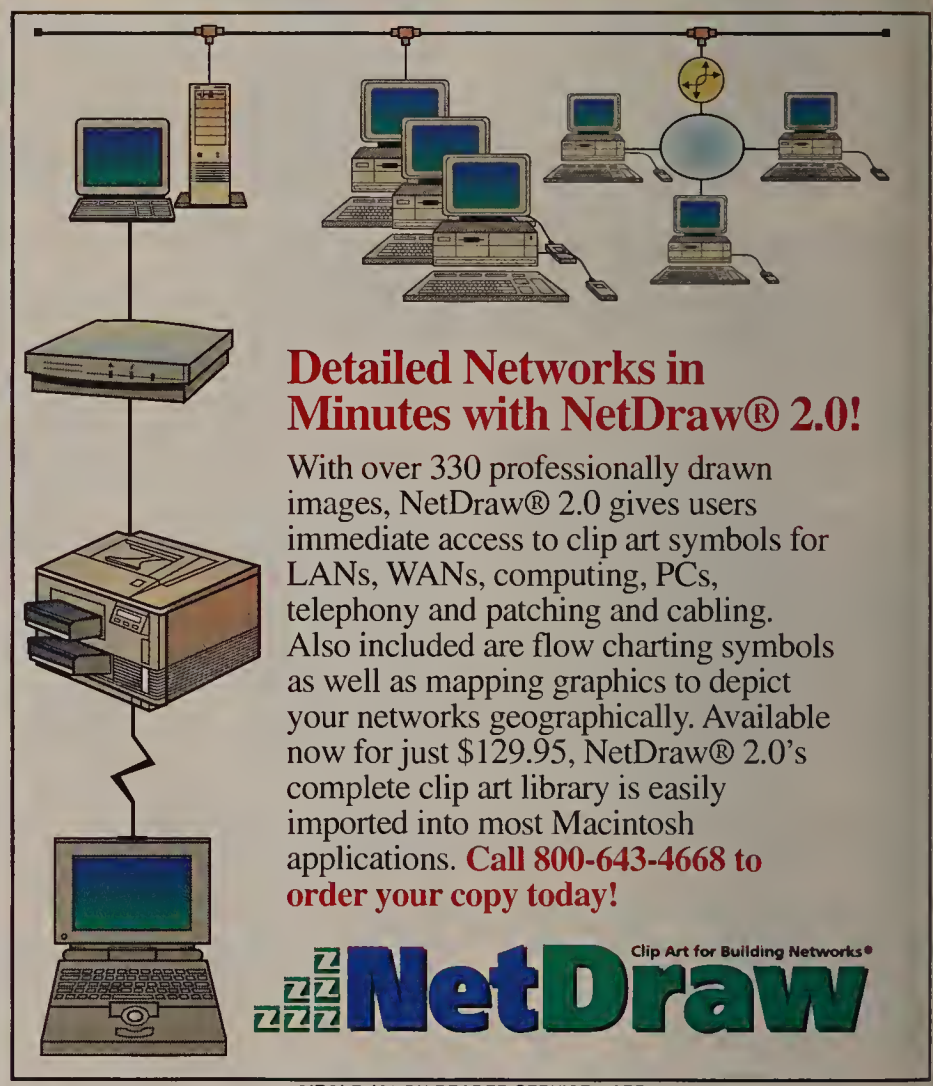


http://www.photodisc.com PHOTODISC

CIRCLE 519 ON READER SERVICE CARD

REAL world education℠
FULLSAIL℠
school of
digital media
film&video
audio
+1 800 226 7625

CIRCLE 413 ON READER SERVICE CARD



Detailed Networks in Minutes with NetDraw® 2.0!

With over 330 professionally drawn images, NetDraw® 2.0 gives users immediate access to clip art symbols for LANs, WANs, computing, PCs, telephony and patching and cabling. Also included are flow charting symbols as well as mapping graphics to depict your networks geographically. Available now for just $129.95, NetDraw® 2.0's complete clip art library is easily imported into most Macintosh applications. **Call 800-643-4668 to order your copy today!**

NetDraw® Clip Art for Building Networks®

CIRCLE 461 ON READER SERVICE CARD

CIRCLE 415 ON READER SERVICE CARD

3D Models by the Hundreds!

(at just pennies each)

Save time on your 3D projects! All Replica Technology objects are Textured, Scaled, Movable Available for Strata or Infini-D

Interior Design Collection
500 furniture, furnishings, construction objects, 4 complete homes.

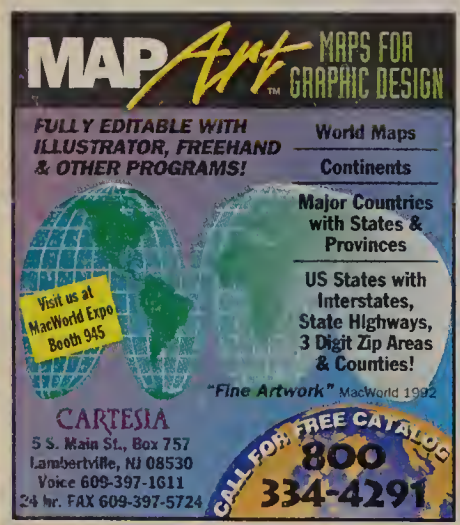
The Wright Collection
Over 100 furnishings and pieces styled after the designs of Frank Lloyd Wright.

Camelot Collection
300 objects of things medieval. Complete 12th century European castle, furnishings, weapons & structures.

Each collection includes scenes, browser images & preview anims.

Replica Technology
800-714-8184
E-Mail: Replica@localnet.com
Fax: 716-337-0642
All major credit cards accepted.

CIRCLE 499 ON READER SERVICE CARD



Active Buyers turn to the

Over 590,000 Macworld subscribers turn to the Macworld Shopper monthly. 531,250 of these buyers have taken action as a result of seeing an ad in the Macworld Shopper.

Macworld Shopper Purchase Study, 1995

Kāblit™ Security

NOW!

STOP COMPUTER THEFT!

IN THE OFFICE — ON THE ROAD

- Secure computer or Powerbook™ to desk, table, etc.
- Protect data
- Lifetime warranty

MacKāblit™ II - List $49.95

Fixed Location

Kāblit™ T-Lock - List $39.95

Any Location

Quick And Easy To Install
Travels With Your Powerbook™

Padlock Security Provided by Master® Lock

Secure-It

Order now — Call 800-451-7592...

18 Maple Court, East Longmeadow, MA 01028, USA phone 413-525-7039

The particular Master® Lock Trademarks used are trademarks of the Master® Lock Company and are used by Secure-It, Inc. under license.

CIRCLE 412 ON READER SERVICE CARD

Start your own custom Online Service!

Create your own online interface using graphics and sound

Online viewers for pictures, thumbnails and descriptions

Simultaneous upload and download

- Internet E-mail
- Multi-user Chat
- Fastest file transfers available
- Mac and Windows client software
- Supports Modems, ISDN and TCP-IP
- Unlimited user license

Call 714.453.8095 for a FREE Demo Disk and more information.

TeleFinder bbs

Spider Island Software
One Venture, Ste. 230, Irvine, Ca 92718 USA
BBS: 714.453.8190 Fax: 714.453.8044
info@spiderisland.com
http://www.spiderisland.com

CIRCLE 489 ON READER SERVICE CARD

SLIDES

From PC & Mac files $3.75
4x5 chromes/negs $30
Dye sub print/overhead $18
Hi Res Scanning $10

Call for special pricing on Quantity Duplication of Slides & Overheads

Show & Tell 39 W38th St., NY, NY 10018
212 840 2912 • 212 840 7953 (fax)

CIRCLE 550 ON READER SERVICE CARD

NEXTWAVE
SERVICE BUREAU

35mm SLIDES & DUPES
4X5's & SCANS
PC & MAC
OVERHEADS
COLOR PRINTS:
Fiery, Iris, Cactus
COMPETITIVE PRICING

in new york 212/989 2727
elsewhere 800/445 9002
bbs 212/989 3290

AMERICAN EXPRESS • VISA • MASTERCARD • DISCOVER

CIRCLE 488 ON READER SERVICE CARD

MAC REPAIR & UPGRADE

800-622-7977

24 HOUR SERVICE TURNAROUND
LONGER WARRANTY
FREE DIAGNOSTICS
COMPETITIVE PRICE

- Specialize in component repairs
  - -Power Mac
  - -Power Book
  - -Logic boards
- Advance Exchanges

Phone: 408-720-9899
Fax.: 408-720-9459
720 East Evelyn Ave.
Sunnyvale, CA 94086
http://www.dttservice.com

DT & T MACINTOSH SERVICES, INC.

CIRCLE 504 ON READER SERVICE CARD

Data Recovery and Assistance:
800 440-1904

DRIVESAVERS® DATA RECOVERY

DriveSavers' advanced, proprietary techniques and amazing success stories have been featured on *CNN* and *Headline News*, and appeared in *The Los Angeles Times*, *MacUser*, and *Nation's Business* (to name just a few). That's because, since 1985, businesses and individuals have trusted us to recover data others said was lost forever. Just give us a call. We can save it!

400 BEL MARIN KEYS BL., NOVATO, CA 94949, PHONE: 415-883-4232, FAX: 415-883-0780

CIRCLE 510 ON READER SERVICE CARD

ONTRACK DATA RECOVERY

The World Leader in Professional Data Recovery Services!

- Mac Specialists
- Any Media
- All Operating Systems
- Emergency Services

Mention this ad for a FREE diagnostic evaluation!

Ontrack® DATA RECOVERY

1-800-872-2599

West Coast 1-800-752-7557 • Federal Customers 1-800-650-2410

CIRCLE 459 ON READER SERVICE CARD

STOP Throwing Away TONER Cartridges

Recycle & Save Up To 70%
Better Print Quality
Free Pick-Up & Delivery

National Toner Recycling & Supply, Inc.

(800)676-0749

(203)853-2998 Fax (203)853-1258

CIRCLE 429 ON READER SERVICE CARD

Since 1989, We've Put More Lives Back Together Than Oprah, Donahue, and Dr. Ruth Combined.

They aren't just documents and files. They're your life. And that's the way we treat them when you come to us for data recovery. Since 1989, we've restored information that has helped McDonnell Douglas fly high, kept Mobil Oil in the black, and allowed Johns Hopkins University to stay on the cutting edge of medicine. We can do the same for you, too. Quickly, efficiently, and painlessly. So, the next time you experience data loss, give us a call. We'll help you make the most of a bad situation.

800-743-0594

TOTAL RECALL®
THE DATA RECOVERY COMPANY℠

www: //usa.net/totrecal Phone 719-380-1616 Fax 719-380-7022

CIRCLE 458 ON READER SERVICE CARD

indigo™
DIGITAL OFFSET COLOR™
print only what you need ...
PC/MAC files go directly to the digital press!

Short-Run 4-Color Offset Printing
Brochures, Press Kits, Product Literature, Business Cards, Newsletters, Phone Cards...
- FTP or modem your files
- 24-48 hour on-demand service
- Expert Customer Support Team

Call for info/samples/quotes/now!

IMAGERS®
Overnight Services
800-672-7032 or 404-351-5800
1575 Northside Dr. Suite 490 Atlanta 30318
www.imagers.com

CIRCLE 456 ON READER SERVICE CARD

Data Recovery in hours.
- Over 10 years of experience with clients worldwide including Apple, NASA, HP, and FedEx.
- We've recovered more than half-a-million megabytes of Mac Data alone.
- You only pay when there's a recovery.
- Express One-Day Service is available.
- Call 24 hours a day.

415-495-5556 • FAX 415-495-5553 • RESTRICTIONS MAY APPLY
381 Clementina Street • San Francisco, California 94103

LAZARUS
DATA RECOVERY
Working at the speed of business.
800-341-DATA

CIRCLE 427 ON READER SERVICE CARD

MAC REPAIR
Mac Shop Northwest
- Apple™ Certified Technicians
- One-Day Service Turnaround*
- Hard Disk Repair & Data Recovery
- Up to 75% below Dealer Rates
- Component-Level Repairs
- Expert Advice and Prices by Phone
- Power Supplies & Logic Boards*
- Lifetime Repair Warranty*

Tel: 1-503-642-3456
*on many repairs. Visa/MC/AX. Fast overnight shipping available. We use genuine Apple™ parts.
FEDERAL EXPRESS

1-800-MAC-SHOP

CIRCLE 515 ON READER SERVICE CARD

SAFEWARE
Insures Your Computer
The Computerowners℠ Policy insures you against theft, fire, accidental damage, lightning even power surge! Replace or repair for $49 a year. Available in the U.S. & Ontario.
1-800-800-1492
SAFEWARE, The Insurance Agency Inc.
2929 N. High St., PO Box 02211
Columbus, OH 43202

CIRCLE 426 ON READER SERVICE CARD

LS FORTRAN
- ANSI standard FORTRAN 77
- VAX & Cray extensions
- Extensive code optimizations
- Background execution
- User-friendly Mac interface
- Native PowerMac & 68K

800-252-6479
Fortner Research LLC
(703) 478-0181 • Fax: (703) 689-9593
Info@fortner.com
Web: http://www.langsys.com/langsys

CIRCLE 441 ON READER SERVICE CARD

Digital Output
Have You Called Us?
Slides, Overheads, Canon Digital Lasers, 4x5 Imaging, Big Color Posters, Dye-Sub Color Prints...
IMAGERS®
800-672-7032 or 404-351-5800
1575 Northside Dr. Suite 490 Atlanta 30318
www.imagers.com

CIRCLE 500 ON READER SERVICE CARD

SCANNING SERVICES
Kodak PHOTO CD SERVICE PROVIDER
Pro/$8 • 35mm Master/$.90
IMAGERS®
Overnight Digital Services
800-672-7032 or 404-351-5800
1575 Northside Dr. Suite 490 Atlanta 30318
www.imagers.com

CIRCLE 502 ON READER SERVICE CARD

"I always look at the entire Macworld Shopper section to see what is available. I also like to check the prices of all the different products."
–Owner, Computer Consultants
(Source: Harvey Communication Measurement Report, January 1995)
Macworld SHOPPER

"I bought a Personal LaserWriter from Shreve Systems, a Macworld Shopper advertiser, and got a great deal and an excellent product. They're better than local computer stores!"
–Technical writer, Shopping Center Developers
(Source: Harvey Communication Measurement Report, January 1995)
Macworld SHOPPER

Special table setup for *your* Mac
Lots of cabinet choices for fitting all your hardware (printers, towers, small CPUs, external drives). Keeps cables and power strips concealed. Adjustable table surfaces for right or left handed use. Call today for a free catalog.
Table shown $289. Cabinets $139 each. Many others available.
ScanCo
1-800-722-6263 or 1-206-481-5434 http:www.scanc.com

Never again worry about computer theft or damage

What could be better than full replacement?
By now, you've probably heard or read about SAFEWARE® Insurance for microcomputers. But you may still wonder just what it protects, or whether it's really worth the investment. If you've never lost any part of your computer system or software, you probably don't yet realize the limitations of most standard insurance coverages.

What do you mean it's not covered?
Operating your computer system without SAFEWARE protection is fine as long as you don't have to worry about an accident or loss. But what if you came to your office one morning to find you'd been robbed? Or your home had been ransacked? Or that a pipe had burst and caused water damage? Or that your system had fallen victim to a leading destroyer of computers—a power surge? All events beyond your control. If something like this should happen to you, you're likely to find out the hard way how limited your standard insurance policy's protection really is. No matter how little or how much you have invested in your computer system, discovering that it's not covered can be an expensive lesson.

What's the right coverage?
SAFEWARE's COMPUTEROWNERS℠ Policy is a simple, easy-to-understand coverage you can count on. The policy offers full repair or replacement of hardware, media and purchased software, after a low $50 deductible.

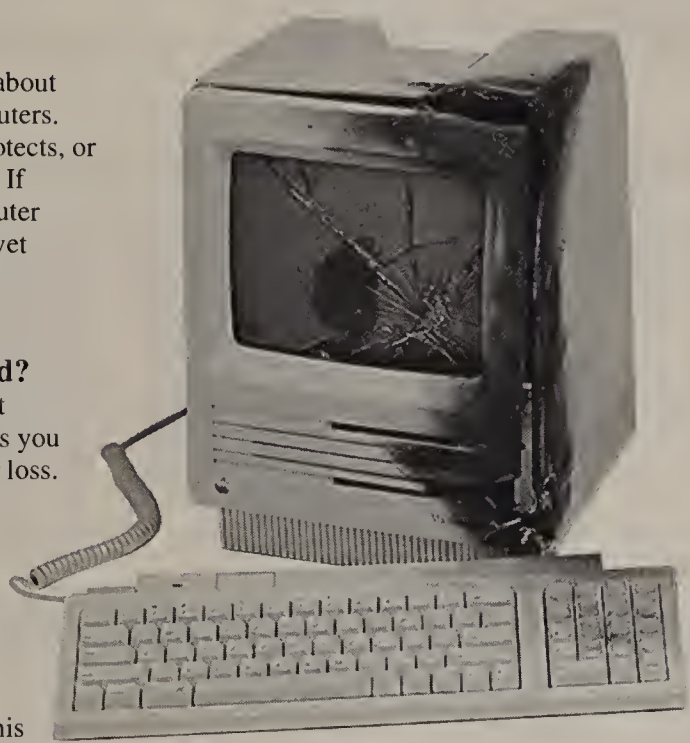
With your COMPUTEROWNERS Policy there's no need for you to schedule equipment or software as you do with "rider" policies. This will be especially important to you if you're ever planning to buy additional equipment or software, even just one peripheral.

No risk offer!
Your COMPUTEROWNERS Policy is a comprehensive plan of insurance, which means that it covers hardware, purchased software and media. Your complete system is protected against theft, fire and accidental damage. Your SAFEWARE Policy even covers damage caused by power surges . . . the leading destroyer of microcomputers.

The COMPUTEROWNERS Policy does not cover theft from an unattended vehicle, earthquake or computers outside of the U.S. and Canada. Call for these coverages.

Now, the COMPUTEROWNERS Policy is available on a no risk basis. If you are not completely satisfied with your coverage, you may return the policy for a full refund within 10 days of receiving it.

11/93



Press Reports
COMPUSERVE MAGAZINE . . . "If you use your computer for business, chances are your homeowners' policy won't cover it. Instead, you need to purchase special insurance. If you're self-employed, the premiums are tax-deductible."

THE WASHINGTON POST . . . "According to industry analysts, thefts of personal computers have risen by 400 percent since 1991."

Tens of thousands have said "yes!"
Since it was first introduced in 1982, tens of thousands of computer owners have said "yes" to SAFEWARE. Owners of systems, from the smallest portable to larger sophisticated business systems, are finding that SAFEWARE offers the most affordable and complete protection. SAFEWARE coverage offers the simplest peace of mind available to ensure carefree computing.

Easy to order!
Choose from two simple ways to pay for your COMPUTEROWNERS Policy: Call the toll-free phone number listed and we'll charge the premium to your VISA, MasterCard or American Express. You can also mail the coupon along with your check or credit card payment.

Total Hardware, Media & Software System Value	Annual Premium
Up to $2,000	$49
2,001 - 5,000	69
5,001 - 8,000	89
8,001 - 11,000	109
11,001 - 14,000	129

Call toll-free for rates on higher coverage

It is an underwriting requirement that you insure all your computer equipment for full replacement cost.

SAFEWARE, The Insurance Agency Inc.
2929 N. High St.
P.O. Box 02211
Columbus, Ohio 43202

1-800-SAFEWARE
NOW AVAILABLE IN CANADA!

With your COMPUTEROWNERS policy you get...
- Full repair or replacement coverage.
- Freedom from worries of fire, theft or accidental damage.
- Ultimate in power surge protection.
- **Costs as low as $49 per year.**

ACTIVATE A SAFEWARE COMPUTEROWNERS POLICY NOW!
Complete, sign and return with your credit card or check payment. Or, for faster service, call

1-800-800-1492
On CompuServe: GO SAF

YES! MY COMPUTER NEEDS IMMEDIATE COVERAGE.
I understand I have 10 days from receipt of my policy to review terms and conditions. If not satisfied, I can return for a full refund.
Please Print Clearly

Name _____
Address _____
City _____
State/Zip _____
Total System Value $ _____

Enclosed is my payment for one year
❑ Check enclosed
❑ MC ❑ VISA ❑ American Express

Card # _____
Expiration Date _____
Signature _____
Daytime phone _____

This ad is a general summary of the provisions and qualifications of the insurance benefits included in the policy. Review your policy for full details. Call for coverage in TX, MI and NY. Void where prohibited. MW-2/96.

Mail to:
SAFEWARE, The Insurance Agency Inc.
2929 North High St.
P.O. Box 02211
Columbus, Ohio 43202

Underwritten by
AMERICAN BANKERS INSURANCE COMPANY
11222 Quail Roost Drive, Miami, FL 33157

CIRCLE 426 ON READER SERVICE CARD

Macworld DIRECTORY

ACCOUNTING SOFTWARE

COMPLETE BUSINESS SOLUTIONS

One-stop shop for hardware, software, financing and services for any size business. Our accounting programs range from basic to sophisticated multi-user systems plus Point of Sale, Inventory, Invoicing and Payroll packages. Call for a catalog or e-mail us at info@maxworld.com.

MAX COMPUTERS • (800) 656-6299

1506 25th Street, San Francisco, CA 94107
http://www.maxworld.com/ • Fax (415) 695-0257

CIRCLE 565 ON READER SERVICE CARD

BIBLIOGRAPHIC SOFTWARE

Bookends Pro ver. 3.2 delivers!

Manage your references, citations, notes. Attach any file to your reference database. Display pictures, QuickTime movies. Sort, validate Editor, Journal, Author, Keyword lists. Import from on-line, CD-ROMs. Sophisticated Find and Search, User defined imports, Format Bank. $99 special. 1-800-325-1862.

WESTING SOFTWARE, INC.

email westing3@aol.com • http://www.westingcom/westing
134 Redwood Ave. Corte Madera, CA 94925 • Fax 415-945-3877

CIRCLE 566 ON READER SERVICE CARD

CD-ROM ARCHIVE

Archive Business Kit: CD-ROM

Make $300+ per day with putting data onto CD-ROM. This kit shows you how to start an archive business and includes an actual business database with ready to use forms, letterhead, fax, checklist, etc. Complete with CD-ROM (Mac or PC), 3-ring binder with info: $160.00

GLOBAL CD

P.O. Box 5617, Madison WI 53705
500-447-DISC • 608-238-6001 • Fax: 608-238-6081

CIRCLE 567 ON READER SERVICE CARD

COMPUTER INSURANCE

"INSURANCE TO GO" (sm)

Insurance for your Power book that's on the go and your stay at home desktop computer. Covers against theft, fire, accidents, power surge, natural disasters including earth-quake. Bonus free software coverage. Premiums start $60 p/yr low deductible. Call 1-800-722-0385 for details.

THE COMPUTER INSURANCE AGENCY, INC.®

6150 Old Millersport Rd. NE, Pleasantville, OH 43148
1-800-722-0385

CIRCLE 568 ON READER SERVICE CARD

COMPUTER INSURANCE

INSURES YOUR MAC

The Computerowners (sm) insurance policy repairs or replaces hardware, media and purchased software. $49 a year covers up to $2,000 of equipment against theft, fire, accidents, power surge, natural disasters and more! $50 deductible. Call for immediate coverage or information. 1-800-800-1492.

SAFEWARE, The Insurance Agency, Inc.

2929 N. High St., P.O. Box 02211
Columbus, Ohio 43202

CIRCLE 569 ON READER SERVICE CARD

DIGITAL IMAGING & PHOTOGRAPHY

QuickTake & Digital Camera Accessories

- CloseFlash: Even lighting as close as 2" (QuickTake, DC40).
- CloseTake: Photos from 2" to 4' (QuickTake).
- QuickPan: QuickTime VR Pan Head (QuickTake, 35mm, DC 40).
- WideTake: Doubles the camera's field of view (QuickTake).

KAIDAN

218 Anvil Dr. #110 Feasterville, PA 19053, Tel 215-364-1778
Fax 215-322-4186 info@kaidan.com http://www.kaidan.com

CIRCLE 570 ON READER SERVICE CARD

DRIVE SALES & REPAIRS

FLOPPY DRIVE REPAIR & SALES

Mac 3.5" 400k, 800k, & 1.44 MEG $40.00
Advanced Exchange . . . . . $50.00 to $85.00
New &Refurbished Drives . . . . . .CALL
Price includes most parts, cleaning & alignment. 1yr warranty on repair, 2yrs on new drives. Schools + Gov't. PO's accepted.

UPTIME COMPUTER SUPPORT SERVICES

http://www.scvnet.com/~uptime
Valencia, California 805-254-3384 Fax 805-254-1950

CIRCLE 571 ON READER SERVICE CARD

ENGINEERING SOFTWARE

Parking Structure Evalutaion

Building owners, property managers, real estate agents and engineers "do it yourself" parking structure evaluation and repair cost estimation. Save 1,000's of dollars in engineering consulting fees. Novice & Expert users. 20 day MBG. $295+10s/h, Demo $25+s/h (Visa/MC).

MAN•ENG CONSULTANTS

1-800-263-3346 PACIFIC TIME
3:00 pm to 9:00 pm, 7 Days a Week

CIRCLE 572 ON READER SERVICE CARD

GENEALOGY SOFTWARE

Family Heritage File™ 4.0

Most powerful and easy genealogy program. Rated "BEST" by Macworld. Designed by genealogy professionals • Graphic Pedigree, Descendants, Families, Individuals, Marriages, Surnames • Unlimited Info/Individual • Export • Gedcom •Jewish/LDS features. $149 + $5 s/h. Demo $7. Free Lit. Pak.

STAR•COM MICROSYSTEMS

Order Direct • Visa/MC OK • 801-225-1480
Windsor Park E., 25 W. 1480 N., Orem, UT 84057

CIRCLE 573 ON READER SERVICE CARD

MANUFACTURING SOFTWARE

The Qube Controller™

Complete GUI-based system runs x-platform on Macintosh® & Windows™. Includes Inventory, Multi-Level BOMs, MRP II, CRP, Job Cost, Lot, Batch & Serial #s, and much more! Complete accounting modules or interfaces w/ Great Plains®.

QUBE CONNECTIONS, INC.

One Fayette Park, Syracuse, NY 13202-2148
Tel (315) 476-2075 • Fax 476-3138 • qcisales@aol.com

CIRCLE 574 ON READER SERVICE CARD

MEDICAL SOFTWARE

ELECTRONIC MEDICAL RECORDS

You ARE ready for a computerized medical chart. Care4th® Pro will revolutionize your practice. Doctor designed, astoundingly powerful, yet it feels like a chart. Hundreds of doctors in 46 states already know this. Under $2800, Mac/PowerMac.

MED4TH SYSTEMS, LTD.

1165 W. Green Tree Rd., Milwaukee, WI 53217
(414) 351-1988 / (414) 351-1954 Fax

MEMORY

Memory Batteries Fax/Modems

We offer RAM memory upgrades, batteries, AC adapters, Auto Adapters, Chargers & fax/modems for over 3,500 brands and models of MAC's, PC's, laser printers, workstations, etc. Lifetime Warranty on RAM and fax/modems, 1-Year on batteries. Low prices & immediate availability. Hard drives also available.

CONTROL MEMORY FACTORY

1-800-952-7867 • 408-437-1122 • Fax: (408) 437-1278

CIRCLE 575 ON READER SERVICE CARD

POWERBOOK BATTERIES

YOUR BEST BATTERY SOURCE!

From PB 100 to 5300 (and all the rest), Erudite has what you need to stay mobile...at prices that won't slow you down. We feature products from BTI, Lind & Absolute - all backed by warranty & 30-day MBG. Call, fax or e-mail for your best, lowest price! Visa/MC/Amex accepted.

ERUDITE PRODUCTS CORP.

409 Grand Ave., Englewood, NJ 07631
800-310-8505 Fax 201-871-8301 EruProCorp@aol.com

CIRCLE 576 ON READER SERVICE CARD

PROFESSIONAL TRAINING

Rent MacAcademy Videos by Mail

Videos are the easy way to learn! All major Mac programs available: over 100 different titles, each approximately 2 hours long. A two week rental including S&H, costs about a dollar a day. Return postage is prepaid. Ask about renting CD-ROMs by mail. Get our free catalog.

CAREERTAPES® ENTERPRISES

PO Box 309, Center Harbor, NH 03226-0309
(603) 253-7470 • LindseyA@aol.com

CIRCLE 577 ON READER SERVICE CARD

PUBLICATIONS

Software Developer & Publisher

Each issue contains insight and practical advice from leading writers & innovators in the software industry. Your way to reach the owners, managers, and decision-makers at the companies which develop and publish sofware. http://www.infowebcom.com.

WEBCOM COMMUNICATIONS

10555 E Dartmouth #330, Aurora, CO 80017
800-803-9488 or 303-745-5711

CIRCLE 578 ON READER SERVICE CARD

HOT NEW DIRECTORY!

Make sure you're part of the resource directory that reaches further than any other directory, delivering 625,000 targeted active buyers! All this at a very low cost!

***FOR MORE INFORMATION** please call Bethany Baller at 415-978-3276, or email to bethany_baller@macworld.com*

SPECIFICATIONS:

1. Macworld Directory ads are text only ads. Logos or artwork are not accepted for this section.
2. Copy is accepted in digital format only. Copy may be sent on disk (ASCII or TEXT format) or via e-mail to bethany_baller@macworld.com. Macworld does not accept handwritten copy nor camera ready art work.
3. Ad sizes are as follows:

Headline:	1 line, initial caps of 33 characters maximum OR all caps of 28 characters maximum.
Body Copy:	5 lines, 275 characters maximum.
Company Name:	1 line, initial caps of 37 characters maximum OR all caps of 32 characters maximum.
Address and tel. number:	2 lines, 47 characters per line maximum.

NET PRICING:

	Per Issue
12 issues	$495
6 issues	$515
3 issues	$525
1 issue	$550

TERMS:

Pre-payment only. Visa and Mastercard accepted.

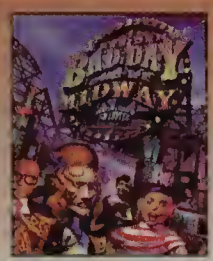
EDUCORP® Multimedia — Your CD-ROM Experts

CD SOFT SOURCE

Over 1,600 titles in stock

Games/Adventures

DOOM II
#U51308, $42.95



Bad Day on the Midway
#51474, $43.95

Foul Play
#51442, $39.95

- Action
- Arcade
- Casino
- Flight
- Graphic Adventure
- Multipacks
- Mysteries
- Puzzle
- Shooting
- Space
- Sports
- Strategy
- Thinking

Part #	CD-RDM Title	Price
U51150	Buried in Time	$42.95
51518	Congo: Descent into Zinj	39.95
51119	Dark Forces	49.95
51064	Descent	49.95
50316	Midnight Stranger ✈ Adults only	49.95
50107	Myst	47.95

Entertainment/General

- Art
- Astrology
- Cooking
- Gardening
- Home Improvement
- Hobbies/Games
- Internet/BBS
- Literature
- Movies/T.V./Magazines
- Music
- Religion
- Screen Savers
- Shareware
- Sports & Fitness
- Travel

Home Improvement 1,2,3
#51329, $39.95

The Beer Hunter
#51172, $37.95

Part #	CD-RDM Title	Price
50661	4 Paws of Crab	$29.95
2095	A Hard Days Night	27.95
50294	Xplora 1: Peter Gabriel	39.95
50642	Cosmology of Kyoto	67.95
50340	Marilyn & André ✈	39.95
51264	Star Trek Omnipedia	49.95

Desktop Publishing

Part #	CD-RDM Title	Price
2067	1,000's of Fonts ✈	$19.95
51131	Cartoon Art ✈	29.95
51490	Corel Gallery 1	39.95
51700	Creative Bundle 3-CD set Includes *Cardshop Plus, StickerShop Plus* and *Calendars and More.*	34.95
50442	Earth & Space Photos ✈	19.95
MB1	Medical Library Bundle 2CD ✈ 2 KODAK Photo CDs including *Medical Library v.1 (People)* and *Medical Library v.2 (Procedures)*	99.95
1444	Professional Photo Collection ✈	29.95

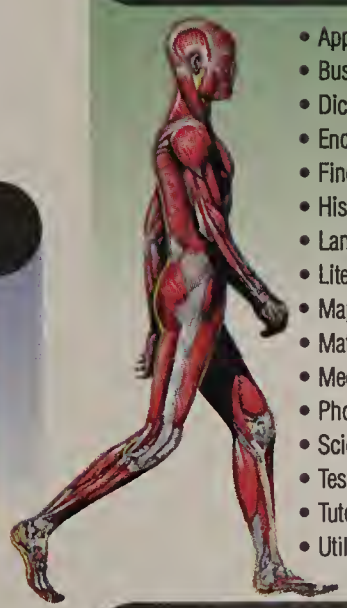
- Applications
- Backgrounds
- Clip Art
- Fonts
- Logos
- Stock Photos
- Textures
- Tutorials

FREE!

Call now for your free color catalog!
Order $50 or more and get *100 Hot Games* (#MM9-1) CD-ROM free!
Act now, this is a limited time offer.

1-800-843-9497

Education/Reference



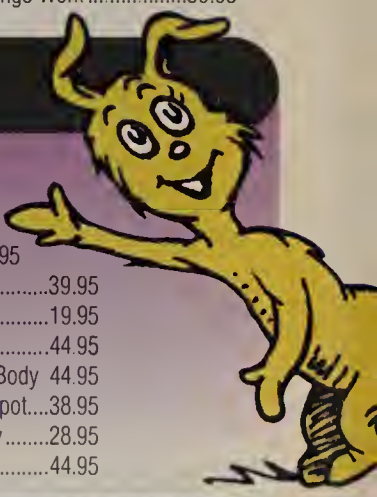
- Applications
- Business/Career
- Dictionaries
- Encyclopedias
- Fine Arts
- History
- Language
- Literature
- Maps/Atlases
- Math
- Medical
- Phone Directories
- Science
- Testing
- Tutorials
- Utilities

Encarta '96
#51649, $49.95

Passage to Vietnam
#51164, $39.95

Part #	CD-ROM Title	Price
50841	3-D Atlas	$49.95
50624	A.D.A.M. The Inside Story	39.95
51710	Cinemania 96	32.95
51066	D-Day & **FREE** Normandy ✈	39.95
51537	Learn to Speak Spanish	99.95
50863	The Way Things Work	39.95

Kids Edutainment



- Creativity
- Early Learning
- History/Geography
- Language
- Math
- Reading
- Reference
- Science & Nature
- Problem Solving

Part #	CD-ROM Title	Price
50836	Amazon Trail	$42.95
51360	Dr. Seuss ABCs	39.95
50618	How Things Work	37.95
1850	Just Grandma & Me	39.95
51129	Kids on Site	19.95
50739	Kid Pix Studio	44.95
51268	Magic School Bus: Human Body	44.95
50461	Math Blaster: In Search of Spot	38.95
50955	My First Amazing Dictionary	28.95
50880	Reader Rabbit 2	44.95

Multimedia Tools

- Animation
- Buttons
- MPEG
- Music
- Photo/Textures
- Sound Effects
- Tools/Utilities
- Video

Part #	CD-ROM Title	Price
51375	HTML TemplateMaster	$24.95
1450	Instant Buttons & Controls	149.95
50885	Missy Hamilton's Textures ✈	59.95
50471	Music Tracks	19.95
1582	SoundFX ✈	29.95

Place your order 24 hours a day, 7 days a week. 1-800-843-9497

Orders: 1-800-843-9497 • Info: 619-536-9999 • FAX: 619-536-2345 • Internet: service@educorp.com • 7434 Trade St • San Diego, CA 92121 • Prices subject to change without notice.

Free shipping on CD-ROM titles with the ✈ next to it.

W45

Circle 157 on reader service card

Viewpoint

by Steven Levy

One-Mississippi, Two-Mississippi . . .

WHY DO MACS TAKE SO LONG TO GET STARTED?

ONE OF THE SACRED precepts of personal computerdom is that over a period of years, or sometimes even months, machines get cheaper, more powerful, and best of all, faster. When journalists, technologists, or flacks want to illustrate how impressive this is, they usually revert to some variation of the following analogy: "If cars followed the same price/performance curve as computers, the Rolls-Royce that cost $100,000 in 1970 would now cost 80 cents, would get 1000 miles to the gallon, and would travel at six times the speed of sound." The mind reels—what if you were tailgated by that guy? No one would blame you for dismissing this whole business as some high-tech fairy tale. Yet there's proof that Moore's Law—the equation that says every 18 months chips get twice as powerful and cost half as much—truly delivers better computers at lower prices, year after year. The same $2500 that bought the original Macintosh in 1984 (with 128K of RAM and the Motorola 68000 processor) now buys a color Performa (with 8MB of RAM, a heavy-duty 601 RISC chip, and a quad-speed CD-ROM drive).

I've had a lot of time to think about this lately, because I've been testing a fresh-out-of-the-factory PowerBook 5300c. Apparently, some of these units—mine included—had some sort of gremlin in the system software that made for some strange behavior. The first sign of trouble came at start-up. After depressing the power button, I and others similarly afflicted experienced a more-than-generous interval before the machine was ready for work. How much time? Over five minutes, now that you ask. This was ample time to contemplate not only issues in technology, but diverse subjects like the national budget, the odd yet welcome Jane Austen revival, and the simmering debate as to whether the new millennium will truly begin on the first day of the year 2000 or as some literal-minded types insist, on the same day a year thereafter.

Now, I am informed by an Apple spokesperson that this long start-up process is not normal; something was awry. And indeed, sometime after I returned the unit, Apple announced a fix that presumably cut the launch time. Still, just last summer I tested out a Power Mac 9500, the mightiest unit Apple has offered to date, and though I never took a stopwatch to it, my nonscientific verbal countdown (one-Mississippi, two-Mississippi . . .) went well past the two-minute mark between turn-on and turned on. And the Macintosh I use most, my trusty PowerBook 180, routinely takes over a minute.

To a Macintosh veteran like myself, this has a profound and disturbing significance. I remember the criticism leveled at the original Macintosh on its introduction 12 years ago. Not the least of its perceived flaws was a lackadaisical quality that manifested most glaringly on start-up. Unlike the other computers of the time—the IBM PC and the Mac's older cousin, the Apple II+—the Macintosh did not spring to attention immediately, but engaged in what seemed an interminable conversation between the internal and external floppy disk drives before the folders finally appeared on screen and you were finally ready for work. Apologists looked on the bright side, suggesting that this break was a perfect time to fix yourself a cup of coffee. We pioneers understood: the Mac was hardworking but underpowered.

And now, 12 years later, with a Mac several hundred times more powerful, on starting up the machine we still have time to brew coffee. The faulty PowerBook even gave me time to grow coffee beans. So much for the Rolls-Royce that outspeeds the space shuttle.

The designers of today's computers, particularly the geniuses at Apple's R&D division at One Infinite Loop, are great at making machines more powerful, but severely lacking in clues as to how to make that power work for us. (Incidentally, this problem is no longer unique to Macintoshes—start-up on a Windows 95 machine also allows ample time to watch paint dry.) I'm sure there are solid technical explanations for the long boot-up period—after all, the software is much more complicated than it was in 1984, and the Mac performs so many more tasks. And this problem does not necessarily extend to everything: many tasks—opening files, for instance—do take much less time than in those early days. Maybe that's why it's so infuriating to confront the mini-eternity of waiting when you start the Mac.

So if any of you designer types are reading this, let me slip you some advice: we don't want computers that *can* go faster—we want computers that *do* go faster. From the very start. As any runner will tell you, the most important part of the race happens at the starting gate. **m**

Macworld contributing editor STEVEN LEVY is a technology columnist for *Newsweek*. He is the author of several books on computer technology, including *Insanely Great: The Life and Times of Macintosh, the Computer That Changed Everything* (Viking, 1994).

WARD SCHUMAKER

YOU PROBABLY NOTICED THE CIRCLE ON THE RIGHT IS .00437" LARGER.

YOU'RE A PERFECT CANDIDATE

FOR OUR MONITOR.

For the truly demanding, we present the NEC MultiSync XP21 monitor. A creation so precise it satisfies even the discerning eyes of graphic artists, designers, architects and the like.

The MultiSync® XP21™ Monitor
With Image Manager™ Software.

The precision starts with the remarkable control provided by our Image Manager software. It's an intuitive interface, similar to software you're already familiar with, that lets you use your keyboard and mouse to adjust the size and position of images. You can also access up to 11 different screen geometry adjustments, five different industry standard color settings, plus up to five personal color settings.* Then, once your standard settings are established, you can download them to all your XP monitors. Of course, all this control saves service and support time. Which, when you think about it, is really a form of control in itself.

MULTISYNC® XP21™

21" Flat Square Technology CRT
(19.8" viewable image size)

Max. Res.: 1152 x 870
(Mac Dual Page Mode)

OptiClear™ Surface

On-Screen Manager

Sun® Workstation Compatible

3-yr. limited warranty

Optional ColorProof System calibrator

MULTISYNC® XE21™

21" Flat Square Technology CRT
(19.8" viewable image size)

Max. Res.: 1152 x 870
(Mac Dual Page Mode)

OptiClear Surface

On-Screen Manager

3-yr. limited warranty

And you can rest assured your images will be displayed with consistent accuracy. TheMultiSync XP21 monitor delivers brighter, sharper, high-resolution pictures. And its dual dynamic beam focus virtually eliminates distortion all the way out to the edges and corners. We even have GlobalSync™ technology that counteracts the effects of the earth's magnetic field on screen geometry and color purity.

This may all seem a bit indulgent to most. But it makes the MultiSync XP21 perfect for graphic design, color pre-press, CAD/CAM, document imaging and other high performance uses. If your computing falls more into areas of page layout or sophisticated business applications, check out the MultiSync XE21.™

So find out more about the monitor that – dare we say? – runs circles around the competition. The MultiSync XP21. Just call 1-800-NEC-INFO. To get information sent via fax, call 1-800-366-0476 and request catalog #1. Or contact us on the Internet at http://www.nec.com.

SEE, HEAR AND FEEL THE DIFFERENCE.™

NEC

*Requires ACCESS.bus capable computer or ACCESS.bus adapter available separately from NEC by calling 1-800-820-1230. MultiSync is a registered trademark and OptiClear, Image Manager, GlobalSync, XP21, XE21 and See, Hear and Feel the Difference are trademarks of NEC Technologies, Inc. All other trademarks are the property of their respective owners. GSA# GS00K94AGS5241PS01. ©1995 NEC Technologies, Inc.

Key #26444.

Circle 16 on reader service card

Janet and her favorite pop-up menu.

When Janet's clients want a design changed, they want it changed yesterday.

Good thing Janet has Turbo Mouse® 5.0, the all-new high-performance trackball from Kensington.

Turbo Mouse is no ordinary mouse. Its unique four-button design and intelligent software let Janet execute multi-step commands with a single click.

And she saves even more time by organizing the commands in a convenient and personalized pop-up menu.

One click brings up the menu. Another click executes a command, like changing the colors or fonts.

One click even bills her clients. That's because Janet has set up her pop-up menu to access her clients' invoice files.

But pop-up menus are not just for desktop publishing. You can use them for word processing, spreadsheets, just about anything.

Easy-to-program, easy-to-use, your favorite programs will run better. You'll work faster. You'll save valuable time.

Turbo Mouse 5.0 features a new four-button design, a large, comfortable ball, and stainless steel bearings for ultrasmooth movement. And because it's a trackball, you also save desk space.

Kensington Mouse, our new two-button conventional mouse, features a tapered shape, a symmetrical design and inclined sides for more comfort and control.

Acclaimed by users and critics alike, Kensington mice have won more awards than any other input device. And they all come with the unique Kensington Satisfaction Guarantee, which includes a 5-year warranty, toll-free support and a no-risk 90-day trial.

Compatible with System 7.5 and Power Macintosh.

For more information, please call 800-535-4242.

KENSINGTON®

Turbo Mouse 5.0
Kensington Mouse

Turbo Mouse and Kensington are registered trademarks of Kensington Microware Limited. All other trademarks are the sole property of their respective owners. © 1995 Kensington Microware Limited 12/95

Circle 1 on reader service card